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BIBLIOGRAPHY

IZVESTIYA AN USSR, OTN, EiA, 1959. [1960] 8p.
Order from MDF $1.00/set MDF T/C: EiA-59

Trans. of table of contents of A[kademiya] N[auk] SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izvestiya, 1959, no. 1.

Library of Congress, Washington, D. C.
EAST EUROPEAN ACCESSIONS INDEX. Apr 60, 275p.
Order from GPO $10.00/year

Designed to serve the English-speaking user, this index lists post World War II publications received by the Library of Congress and over 100 major American research libraries from Albania, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, and Yugoslavia in all fields of knowledge. Arrangement in the first part is by country and within each country by 17 subject classes. In addition to the entry in the original language, a translation of the title or a descriptive annotation in English is given for each monograph and periodical, with the tables of contents translated into English for selected periodicals. The second part, comprising approximately two-thirds of the Index, consists of a subject index to all articles appearing in periodicals for which the tables of contents are translated and to all monographs listed.

AGRICULTURE

Abramenko, V. V.
CONFERENCE ON THE CONTROL OF THE COLORADO BEETLE. 23 Mar 60, 3p. JPRS: 2438.
Order from OTS $0.50 60-11441

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959 [v. 4] no. 6, p. 58.

Animal Husbandry

Andryanov, I. M.
DEVELOPMENT OF THE VETERINARY SERVICE IN NEW CHINA (Razvitiye Veterinarnogo dela v Novom Kitaye). 25 Jan 60, 7p. Trans. V-1519.
Order from LC or SLA mi$1.80, ph$1.80 60-13496

Trans. of Veterinariya (USSR) 1953, v. 30, no. 9, p. 9-10.

Things have been much better since 1949.

Balykin, V. E.
VETERINARY SERVICE IN KIRGHIZ SSR (Veterinaraya Sluzhba v Kirgizskoy SSR). 10 Feb 60, 20p. Trans. V-1522.
Order from LC or SLA mi$2.40, ph$3.30 60-15946

Trans. of Veterinariya (USSR) [1959] v. 36, no. 12, p. 43-50.

Chen, Shao Diun and Alenkovich, A. A.
ORGANIZATION OF THE VETERINARY SERVICE IN THE PEOPLE'S REPUBLIC OF CHINA (Organizatsiya Veterinarnoy Sluzhby v Kitayskoy Narodnoy Republike). 15 Dec 59, 31p. Trans. V-1510.
Order from LC or SLA mi$3.00, ph$6.30 60-13488

Trans. of Veterinariya (USSR) 1959, v. 36, no. 10, p. 70-77.

Ginzburg, A. G.
ANTIBIOTICS FOR THE SERVICE OF USSR ANIMAL HUSBANDRY (Antibiotiki: na Sluzhby Sel'skogo Khozyaystva SSSR). 16 Dec 59, 11p. Trans. V-1511.
Order from LC or SLA mi$2.40, ph$3.30 60-13489

Trans. of Veterinariya (USSR) 1959, v. 36, no. 11, p. 51-55.

Kozhakin, S. K.
PRINCIPAL RESULTS AND PROBLEMS OF VETERINARY SCIENCE IN KAZAKHSTAN AT THE PRESENT STAGE (Osnovnyye Itogi i Zadachi Veterinarnoy Nauki v Kazakhstane na Sovremennom Etape).
18 Feb 60, 27p. Trans. V-1525.
Order from LC or SLA mi$2.70, ph$4.80 60-15950

Trans. of Vsesoyuzn[aya] Akad[emiya] Sel'skokhoz-[yaystvennykh] Nauk. Kazakhskiy Filial, Alma Ata. Inst[itut] Vet[erinarii]. Trudy (USSR) 1947/52, v. 6, p. 3-13.

Krapivner, L. M.
SUPPLEMENTARY MATERIALS TO THE HISTORY OF THE HIGHER SCHOOL OF VETERINARY MEDICINE IN RUSSIA (Nekotoryye Materialy k Istorii Vysshey Veterinarnoy Shkoly v Rossii).
4 Nov 59, 22p. Trans. V-1503.
Order from LC or SLA mi$2.70, ph$4.80 60-13482

Trans. of Veterinariya (USSR) 1959, v. 36, no. 9, p. 84-89.

Moryakov, O. I.
IMMUNIZATION OF SHEEP AGAINST BRUCELLOSIS (Sposoby Immunizatsii Ovets Protiv Brutselleza) tr. by R. J. Zatorski. [1959] [23]p. (foreign text included) 14 refs. Trans. no. 4268.
Order from LC or SLA mi$2.70, ph$4.80 59-19602

Trans. of Vsesoyuznyy Institut Eksperimental'noy Veterinarii. Trudy (USSR) 1957, v. 20, p. 12-22.

Nazarov, G. S.
EFFECT OF DISPERSED SUBSTANCES (DUSTS) ON THE ORGANISM OF ANIMALS (Vliyaniye Dispergirovannykh Veshchestv (Dustov) na Organism Zhivotnykh). 10 Nov 59, 22p. Trans. V-1505.
Order from LC or SLA mi$2.70, ph$4.80 60-13485

Trans. of Veterinariya (USSR) 1959, v. 36, no. 9, p. 54-60.

Repeated applications (up to 4 times) of various organic insectoacaricides (dusts of DDT, hexachlorane, dispersed sulfur, 5 and 7% nicotine, and anabasine) to the skin of sheep, dogs, and rabbits did not produce any acute poisoning or any irreversible processes in the animals. It is concluded that the uses of such dusts for the control of ectoparasites is practically harmless to the animals.

Pritulin, P. I.
PARATHPHOID IN SHEEP AND CALVES AS A RESULT OF AEROGENIC INFECTION (Paratify u Ovets i Telyat v Resul'tate Aerogennogo Zarazheniya).
4 Nov 59, 3p. Trans. V-1504.
Order from LC or SLA mi$1.80, ph$1.80 60-13483

Trans. of Veterinariya (USSR) 1959, v. 36, no. 9, p. 26-27.

Shmanenkov, N. A., Mel'nikova, T. S. and others.
UREA (CARBAMIDE) AS PARTIAL SUBSTITUTE FOR PROTEIN IN THE RATION OF MILCH COWS (Mochevina-chastichnyy Zamenitel' Belka v Ratsione Doynykh Korov). [1960] 13p. (1 fig. omitted).
Trans. A-1081.
Order from LC or SLA mi$2.40, ph$3.30 60-15341

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 4, p. 58-63.

When carbamide (75 g) was substituted for 25% of protein in the daily ration of milch cows, the health and productiveness of animals was similar to those in a control group, where cows received an equivalent amount of protein in the form of soybean grist. No difference was noted between feeding carbamide in a dry form with the combined feed, or dissolving it in molasses (89:11) and using it for seasoning corn silage. However, the most uniform milk production was recorded in cows, which were given carbamide solution in molasses. According to biochemical indices the nitrogen metabolism of experimental animals differed only slightly from the metabolism of the control group cows.

Plant Cultivation

LATERITIC SOILS IN KIANGSI. 4 Mar 60, 22p.
JPRS: 2319.
Order from OTS $0.75 60-11348

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958, v. 9, no. 10, p. 451-455.

The topics discussed are: The nature of lateritic soils, lateritic soils are not barren lands, how to convert lean lateritic waste lands into fertile farm lands. The author believes that such soils are well-suited for mechanized farming and the establishment of large-scale State-operated farms and other reclamation farms of a collective nature.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958. (Soviet Abstracts. Biology).
Order from OTS

Contents:
Section M. Cultivated Plants.
No. 22, abstracts 100198-100537, JPRS-2469, 60-11466, $2.50
No. 23, abstracts 104596-104931, JPRS-2492, 60-11479, $1.75

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 23 (Soviet Abstracts. Biology). 25 Mar 60, 24p. JPRS: 2441.
Order from OTS $1.00 60-11439

Contents: Section O. Plant Diseases. Abstracts 104958-105054.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Bolsunovskaya, O. V.
PLENUM OF THE STATE COMMISSION ON VARIETY TESTS OF AGRICULTURAL CROPS (Plenum Gosudarstvennoy Kommissii po Sortoispytaniyu Sel'skokhozyaystvennykh Kul'tur). [1960] 5p. Trans. A-1086.
Order from LC or SLA mi$1.80, ph$1.80 60-15346

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4. no. 5, p. 140-141.

Ch'iu, Lien-ch'ing and Chin, Chen-chou.
PLANT GEOGRAPHY OF YU-LUNG SNOW MOUNTAIN. 30 Mar 60, 13p. JPRS: 2445.
Order from OTS $0.50 60-11455

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958 [v. 9] no. 11, p. 484-487.

Galeyev, G. S.
METHOD OF OBTAINING INTERLINEAR HYBRIDS OF MAIZE BY USING THE STERILE POLLEN OF FEMALE FORMS (Metod Polucheniya Mezhlineynykh Gibridov so Steril'noy Pyl'tsoy Materinskikh Form). [1960] 24p. Trans. A-1093.
Order from LC or SLA mi$2.70, ph$4.80 60-15353

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 6, p. 43-54.

Ivanov, D. N.
DISTRIBUTION OF LITHIUM, RUBIDIUM AND CAESIUM IN PRODUCTS OF MODERN WEATHERING IN SOILS (Rasprostraneniye Litiya, Rubidiya i Tzesiya v Produktakh Sovremennogo Vyvetrivaniya i v Pochvakh). [1960].
Available on loan from DI

Trans. of Kora Vyvetrivaniya (USSR) 1956, v. 2, p. 77-84.

Mikhaylov, N. and Sinyagin, I. I.
RECENT CONFERENCES ON FERTILIZERS. 29 Mar 60, 6p. JPRS: 2415.
Order from OTS $0.50 60-11423

Trans. of Udobreniye i Urozhay (USSR) 1959, no. 9, p. 61 and no. 10, p. 63-64.

Discussion of results of geographical grid tests by the All-Union Scientific Research Institute of Fertilizers and Soil Science (VIUA), by N. Mikhaylov: Authors and titles of reports that were read at the conference which was held June 23 to 27, 1959 are given. International conference of specialists on the production and use of fertilizers, by I. I. Sinyagin: Topics are noted of papers that were read at the conference held in Sofia, Bulgaria from July 7 to July 12, 1959. Authors and titles and brief summaries are given of some of the papers.

Podgornyi, Ya. M.
THE PHYSICAL AND MECHANICAL PROPERTIES OF THE TOBACCO PLANT. [1960] [31]p.
Order from LC or SLA mi$3.00, ph$6.30 60-14388

Trans. of Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Tabak i Makhorki. Sbornik (USSR) 1958, v. 150, p. 191-204.

Data derived by the All-Union Scientific Research Institute for the Construction of Agricultural Machinery are presented. Specifications for harvesting equipment are enumerated.

Sidorov, F. F. and Zubkova, S. V.
COLD RESISTANCE IN MAIZE (Kholodoustoychivost Kukuruzy). [1960] 11p. Trans. A-1094.
Order from LC or SLA mi$2.40, ph$3.30 60-15354

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 6, p. 55-60.

Storozhenko, Yu. G.
RESISTANCE TO PHYTOPHTHORA SHOWN BY VARIOUS STRAINS OF POTATOES WITH DIFFERENT DEGREES OF IMMUNITY IN SAKHALIN (Ustoychivost' k Fitoftore Razlichnykh po Immunnosti Sortov Kartofelya v Usloviyakh Sakhalina). [1960] 7p. 5 refs. Trans. A-1082.
Order from LC or SLA mi$1.80, ph$1.80 60-15342

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 4, p. 132-134.

ASTRONOMY

Khaykin, S. E. and Kaydanovskiy, N. L.
A NEW RADIO TELESCOPE OF HIGH RESOLVING POWER (Novyy Radioteleskop Vysokoy Razreshayushchey Sily) tr. by E. C. B. P. [1960] 11p. (5 figs. omitted) 5 refs. H 6053 A.
Order from OTS $0.50 60-21193

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1959 [no. 2] p. 19-24.

The reflector of the radio telescope consists of flat elements, tangent to the surface of an imaginary paraboloid with an axis, directed at the point of observation, with the tangent points lying in a horizontal plane, passing through the focal point of the paraboloid. The high relative accuracy of the separated reflecting surface of the new radio telescope is attained by an exact placement of its individual elements. The reflector transforms a flat wave into cylindrical one having a vertical axis. The cylindrical wave is transformed into a spherical one by a second mirror - a parabolic cylinder. By transposing the reflecting elements and the illuminators, the axis of the radio telescope diagram can be set for any direction. The completed radio telescope with dimensions of 120 meters on the horizontal and 3 meters on the vertical permits the realization on a wave length of 3 centimeters a directional diagram having a span of 1.2' along the azimuth and 1^0 on the angle of site. The described principle permits the design of radio telescopes for centimeter waves with the reflector area in the neighborhood of 10^4 to 10^5 sq m. (Author)

Mustel', E. R.
THE MAIN SOURCE OF SOLAR CORPUSCULAR STREAMS. 25 Mar 60, 7p. 17 refs. JPRS: 2437.
Order from OTS $0.50 60-11440

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 128, no. 2, p. 265-268.

A literature review.

Yesepkina, N. A.
EXPERIENCES IN ADJUSTING THE LARGE RADIO TELESCOPE (Opyt Nastroyki Bol'shogo Radioteleskopa) tr. by E. S. B. P. [1960] 4p. (4 figs. omitted). 2 refs. H 6053 B.
Order from OTS $0.50 60-21194

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1959 [no. 2] p. 24-26.

A description is given of an experimental test of a proposed method of measuring the parameters of a narrow-beam antenna within the Fresnel zone. Measured patterns and gain factors are given for systems with apertures of about 1000 λ and 2000 λ. The effects of some errors in the surfaces are examined. (Author)

Astrophysics

OPERA [WORKS] OF THE ASTROBOTANY SECTOR, ACADEMY OF SCIENCES KAZAKH SSR, 1958, VOL. 6, P. 3-54. [1960] [77]p. H-4944.
Order from LC or SLA mi$4.50, ph$12.30 60-13238

Trans. of Akademiya Nauk Kazakhskoy SSR, Alma Ata. Sektor Astrobotaniki. Trudy, 1958, v. 6, p. 3-54.

Contents:
Preliminary results of observations of Mars in the astrobotany sector during the great opposition of 1956, by G. A. Tikhov
Visual observations of Mars during its great opposition in 1956, by K. L. Kozlova and Yu. V. Glagolevskiy
Some data of visual observations of Mars in 1956, by A. P. Kutyreva
On the question of the nature of the surface of Mars, by B. M. Vladimirskiy and K. A. Lyubarskiy
Cosmogony and astrobiology, by A. K. Suslov
Criticism of the hypothesis about the existence of vegetation on Mars, by B. M. Vladimirskiy and K. A. Lyubarskiy

Cherednychenko, V. I.
ARTIFICIAL SATELLITES OF MARS? 5 Apr 60, 3p. JPRS: 2449.
Order from OTS $0.50 60-11448

Trans. of Nauka i Zhyttya (USSR) 1959, no. 11, p. 8.

A review is presented of the theory of Professor I. S. Shklovskiy of Moscow University that the moons of Mars, Phobos and Deimos, are hollow inside and therefore of artifical origin. (See also 59-16965, 59-16966)

Fesenkov, V. G.
TWO STUDIES ON ZODIACAL LIGHT: THE CONDITIONS OF DISINTEGRATION OF ASTEROIDS ACCORDING TO THE OBSERVED PECULIARITIES OF ZODIACAL LIGHT [AND] ON ZODIACAL TWILIGHTS. 14 Apr 60, 24p. 14 refs. JPRS: 2489.
Order from OTS $0.75 60-11477

Trans. of Akademiya Nauk Kazakh[skoy] SSR [Alma-Ata]. Astrofiz[icheskiy] Inst[itut]. Izvestiya, 1959, v. 8, p. 3-11 and 13-18.

First study: The observed form of zodiacal light attests that it originates from a complex of bodies that are sufficiently widely distributed relative to the ecliptic but bear no relation to the solar equator. Either the dust matter forming this light is generated by periodic comets (in addition to asteroids), which are characterized by a much broader distribution of orbits according to the angle of inclination to the ecliptic, or there exist a multitude of unknown small asteroids with a broader distribution of orbits than is possessed by known asteroids. Second study: An examination is made of the relative effect on the brightness of zodiacal light observed at a given altitude (e.g., 10 degrees) above the horizon by the incomparably brighter parts of that light located directly below the horizon, the so-called zodiacal twilight.

Karyagina, Z. V. and Gaynullina, R. Kh.
LOW LATITUDE AURORA OF 29-30 SEP 57 [AND] SPECTROPHOTOMETRY OF THE RED PORTION OF THE SPECTRUM OF THE LOW LATITUDE AURORA OF 29-30 SEP 57. 12 Apr 60, 20p. 13 refs. JPRS: 2485.
Order from OTS $0.50 60-11472

Trans. of Akademiya Nauk Kazakh[skoy] SSR [Alma-Ata]. Astrofiz[icheskiy] Inst[itut]. Izvestiya, 1959, v. 8, p. 68-81.

Kuzmin, G. G.
THE MAGNITUDE OF THE DYNAMIC PARAMETER C AND THE DENSITY OF MATTER IN THE VICINITY OF THE SUN (K Voprosu o Velichine Dinamicheskogo Parametra C i Plotnosti Materii v Okrestnostyakh Solntsa) tr. by R. J. Zatorski. [1960] [45]p. (foreign text included). Trans. no. 4338.
Order from LC or SLA mi$3.30, ph$7.80 60-15373

Trans. of Tartuskaya Astronomicheskaya Observatoriya. Publikatsii (USSR) 1955, v. 33, no. 1, p. 3-34.

An explanation is sought for the differences found by previous investigators (e.g., G. G. Kuzmin, J. H. Oort, P. P. Parenago, and V. S. Safronov) in deriving values for C (the dynamic parameter that determines the change in the gravitation potential of a ϕ galaxy in the direction perpendicular to its plane), and ρ (the density of matter in this plane). An examination is made of the previous derivations and the systematic errors in them. The probable value of C is seen to be 66±4 km/sec/kiloparsecs. The probable value of ρ is $(5.2\pm0.5)10^{-24}$ g/cu cm, or 0.077 ± 0.008 $\odot$/parsec^3.

Markov, A. V.
BRIGHTNESS DISTRIBUTION OVER THE LUNAR DISK AT FULL MOON. [1960] 11p. 4 refs.
Order from MDF $5.50 MDF M-128

Trans. of Astron[omicheskiy] Zhur[nal] (USSR) 1948, v. 25, no. 3, p. 172-179.

Melnikov, O. A.
INVESTIGATIONS OF THE ULTRAVIOLET REGION OF SOLAR SPECTRUM. [1960] 10p. (3 figs. omitted) 13 refs. H-4542.
Order from OTS $0.50 60-21200

Trans. from Priroda (USSR) 1959 [v. 48] June.

Solar spectra below 3000 A were obtained from "aerobi" rocket flights (1955 and 1957) above the ozone absorption regions of the atmosphere. Some of the spectra studied are: (1) The resonance lines of ionized carbon, nitrogen, oxygen and silicon predicted by Wooley and C. W. Allen, (2) the emissional resonance lines HeII at 303.8 A and HeI at 584 A, and (3) the decline in the intensity of the continuous spectrum near 2085 A and a diffused absorption near 2270 A. A description is given of two duplex diffraction spectrographs used in the rockets.

Pyaskovskaya-Fesenkina, Ye. V.
CERTAIN DATA ON THE POLARIZATION OF THE SKY IN SOUTHERN EGYPT. 12 Apr 60, 23p. 4 refs. JPRS: 2490.
Order from OTS $0.75 60-11478

Trans. of Akademiya Nauk Kazakh[skoy] SSR [Alma-Ata]. Astrofiz[icheskiy] Inst[itut]. Izvestiya, 1959, v. 8, p. 82-97.

The site of the observations lay in the Libyan Desert, approximately 20 km south of Aswan, on the left bank of the Nile, at the distance of one kilometer from that river ($\phi = 23^{\circ}59'$, $\lambda = 32^{\circ}52'$, $h \approx 200$ meters above the sea level). A visual photometer of the daytime sky was used to measure the brightness and polarization of the daytime firmament. A photo-electric photometer was used for determining the illumination by the circumsolar halo, and by the Sun, of a small plate perpendicular to their rays.

Severnyy, A. B. and Stepanov, V. E.
FIRST OBSERVATIONS OF THE MAGNETIC FIELDS OF SUNSPOTS, MADE AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY (Pervyi opyt Nabliudeniya Magnitnykh Poley Solnechnykh Piaten v Krymskoy Astrofizicheskoy Observatorii). Jan 59 [12]p. 5 refs. T-R-177.
Order from LC or SLA mi$2.40, ph$3.30 60-14230

Trans. of Akademiya Nauk SSSR. Krymskaya Astrofizicheskaya Observatoriya. Izvestiya, 1956, v. 16, p. 3-11.

Preliminary results of the measurements of the magnetic fields of the sunspots are described. The measurements were carried out in 1955 at the tower solar telescope with a large spectrograph. Different methods of the measurements of the sunspots magnetic fields are compared and sources of errors in such measurements are examined. A summary of the magnetic field determinations is tabulated. (Authors' English summary)

Tikhov, G. A.
ASTROBOTANY AND ASTROPHYSICS, 1912-57. 11 Mar 60, 281p. 28 refs. JPRS: 2344.
Order from OTS $3.50 60-11367

Trans. of mono. Tikhov, G. A., Osnovnyye Trudy, Alma-Ata, 1959, v. 4.

The fundamental origins and attainments of the new science of astrobotany, which studies the possibility of plant life on other planets of the solar system, and astrobiology, are discussed. Preliminary findings of observations of the planet, Mars made in 1956 are presented. At the end of the volume, the principles of visual and photographic photometry applied to astronomical problems are elucidated. This book is intended to reach specialists who are occupied with problems in astrobotany and astronomy. (Editor's foreword)

BEHAVIORAL SCIENCES

Personnel and Training

SOVIET SCIENTIFIC AND ENGINEERING PERSONNEL. 4 Mar 60, 39p. JPRS: 3043.
Order from OTS $1.25 60-31078

Consists of complete translations of selected biographic-type articles.

Persons discussed are P. P. Dvizhkov, K. I. Platonov, Ye. A. Kirillov, G. G. Sokolyanskiy, A. A. Pdrel'man, L. B. Litvak, S. A. Volpyanskiy, M. A. Yasinovskiy, N. P. Novachenko, B. A. Shumakov, A. N. Studitskiy, I. V. Larin, N. N. Bogolyubov, and I. I. Medvedev.

BIOLOGICAL SCIENCES

Severina, V. A., Gorskaya, S. V., and Gracheva, I. V.
A STUDY OF THE ROLE OF AMINO ACIDS IN STREPTOMYCIN FORMATION. 7 Apr 60, 18p. 6 refs. JPRS: 3149.
Order from OTS $0.50 60-31120

Trans. of Voprosy Meditsinskoy Khimii (USSR) 1959, v. 5, no. 6, p. 448-457.

The stimulating effect of arginine, histidine, lysine, glycine, α-alanine, valine, phenylalanine and isoleucine on streptomycin biosynthesis under conditions of ordinary fermentation and in acute experiments with pregrown mycelium was established. Aspartic and glutamic acids, serine, theonine, methionine, tyrosine and leucine, under these conditions do not stimulate streptomycin formation. Cystine and tryptophan inhibit the synthesis of the antibiotic. In the primary paths of metabolism, glycine and α-alanine are subjected to oxidative deamination. The regularities found in balanced experiments with arginine indicate the presence in a given actinomyces of active fermentation systems of arginase and urease activity. With respect to the α-amino group, arginine is subjected to desmination. Guanidine and urea do not stimulate streptomycin synthesis in ordinary fermentation and in acute experiments. Streptidine added to the medium increases the yields of streptomycin; this effect is most clearly evident in acute experiments with pregrown mycelium.

Anatomy and Physiology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959. (Soviet Abstracts. Biology).
Order from OTS $1.50

Contents:
Section T. Human and Animal Physiology.
No. 3, abstracts 12391-13408, JPRS: 2525, 60-11511
No. 5, abstracts 21660-22618, JPRS: 2493, 60-11480

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

SECHENOV PHYSIOLOGICAL JOURNAL OF THE USSR, 1959, VOL. 45.
Order from PP $60.00/year

Trans. of Fiziologicheskiy Zhurnal SSSR, 1959,
v. 45, no. 7, p. 749-898
v. 45, no. 8, p. 901-1036
v. 45, no. 10, p. 1173-1290

Dezzani, D. and Lutio, O. de.
THE VASCULARIZATION OF BONE AND ITS BEHAVIOR DURING THE DEVELOPMENT FROM FETUS TO ADULT (La Vascolarizzazione delle Osse ed il suo Comportamento Durante lo Sviluppo dal Feto all'Adulto) Jan 60 [28]p. (22 figs. omitted) 22 refs.
Order from SLA mi$2.70, ph$4.80 60-14191

Trans. of Archivio di Ortopedia (Italy) 1956, v. 69 [no. 6] p. 527-564.

Kostyuk, P. G.
INVESTIGATION OF ELECTRICAL REACTIONS OF THE CENTRAL PORTION OF THE EXTENSOR REFLEX ARC BY THE USE OF MICROELECTRODES, tr. by P. V. DeForte. 9 July 59, 4p.
Order from LC or SLA mi$1.80, ph$1.80 59-18230

Trans. of Russian summary (p. 21-22) of [Kiev U.]. Naukovi Zapysky (USSR) 1957, v. 16, no. 18, p. 5-23.

The electrical reactions of various regions of the gray matter of the spinal cord of the cat, arising during the passage of a single wave of excitation along an extensor reflex arc, were investigated.

Krushinsky, L. V.
EXTRAPOLATION REFLEXES IN BIRDS. 24 Dec 59, 17p. 5 refs. JPRS: L-1975-D.
Order from OTS $0.50 60-31012

Trans. of unidentified Russian mono. (brochure) p. 145-159.

Smirnov, V. S. and Shvarts, S. S.
SEASONAL VARIATIONS IN THE RELATIVE WEIGHT OF SUPRARENAL GLANDS OF MAMMALS UNDER NATURAL CONDITIONS (Sezonnyye Izmeneniya Otnositel'nogo Vesa Nadpochechnikov u Mlekopitayushchikh v Prirodnykh Usloviyakh). Feb 60 [8]p. 17 refs. RTS 1288.
Order from LC or SLA mi$1.80, ph$1.80 60-15430

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 115, no. 6, p. 1193-1196.

Spitzbarth, H., Weyland, H., and Gersmeyer, E. F.
ACCIDENTAL SYSTOLIC HEART MURMERS AND RATE OF FLOW IN THE PULMONARY ARTERY (Akzidentelle Systolische Herzgerausche und Stromungsgeschwindigkeit in der Lungenschlagader). [1960] 12p. 30 refs.
Order from SLA mi$2.40, ph$3.30 60-14547

Trans. of Z[eit]schr[ift] f[ür] Kreislaufforsch[un]g (West Germany) 1958, v. 47 [no. 11] p. 965-971.

In experimental persons with normal circulation, the average rate of blood flow in portions of the pulmonary circulation near the heart (cardiac catheterization) was measured by means of thermistors and the influence of epinephrine, norepinephrine and hypertensin II on it was thereby determined. Small doses of epinephrine accelerate the flow and corresponding doses of norepinephrine and hypertensin II slow it. The simultaneous appearance of the so-called accidental systolic murmurs or their increased sound, which had already been interpreted as "tube flowoff murmurs" in the sense of Bondi, or their disappearance or decreased sound over the site of auscultation of the pulmonary valve is explained by the varying rate of blood flow and the resulting changeability of the vortex formation and their alternating is explained by the "instability" in the path of flow from the ventricle. (Authors' summary)

General Biology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 6 (Soviet Abstracts, Biology). 7 Apr 60, 42p. JPRS: 2494.
Order from OTS $0.50 60-11481

Contents:
Section B. General Biology. Abstracts 23478-23710.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Kühn, K., Hofmann, U. and Grassmann, W.
CROSS STRIATION AND PERIODATE-SILVER UROTHROPIN REACTION IN DIFFERENT TYPES OF COLLAGEN (Querstreifung und Perjodat-Silberurotropin-Reaktion bei verschiedenen Kollagenarten) tr. by W. H. Everhardy. 12 June 59, 25p. (15 figs. omitted). 30 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-18077

Trans. of Z[eitschrift für] Naturforsch[ung] (West Germany) 1956, v. 11b, p. 581-588.

Odintsov, P. and Shishkova, Z.
OBTAINING OF GLYCERIN BY FERMENTING WOOD HYDROLYZATES. [1959] 4p. Trans. A-1007.
Order from LC or SLA mi$1.80, ph$1.80 59-16804

Trans. of Biologicheskaya Nauka: Sel'skomu i Lesnomu Khozyaystvu (USSR) 1957, v. 3, p. 141-142.

Vinogradov, A. P.
GEOCHEMICAL HISTORY OF OXYGEN AND PHOTOSYNTHESIS [Geokhimicheskaya Istoriya Kisloroda i Fotosintez). [1960].
Available on loan from DI

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1947, no. 3, p. 409-422.

Microbiology

PROBLEMS OF VIROLOGY, 1959, VOL. 4, NO. 2, Apr 60, 135p.
Order from PP $30.00/year

Trans. of Voprosy Virusologii (USSR) 1959, v. 4, no. 2, p. 131-253.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 2 (Soviet Abstracts, Biology). 1 Apr 60, 19p. JPRS: 2464.
Order from OTS $1.00 60-11461

Contents: Section E. Virology. Abstracts 5238-5343.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS

Contents:
Section F. Microbiology.
1958, no. 22, abstracts 99196-99528, JPRS: 2497, 60-11484, $1.25
1959, no. 2, abstracts 5400-5662, JPRS: 2506, 60-11491, $0.75

Complete translations of Russian-language entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR) 1959 [VOL. 30] NO. 9, P. 3-157 [Journal of Microbiology, Epidemiology and Immunobiology]. [1960] [48]p. SOV/16-59-9-(1-47)/47.
Order from LC or SLA mi$3.30, ph$7.80 60-17015-9

Consists of abstracts in English.

Kolesnikova, L. G.
CONFERENCE ON CONTINUOUS FERMENTATION AND CULTIVATION OF MICROORGANISMS (Soveshchaniye po Voprosu o Nepreryvnom Brozhenii i Vyrashchivanii Mikroorganizmov). 27 Nov 59, 12p. Trans. V-1507.
Order from LC or SLA mi$2.40, ph$3.30 60-13486

Trans. of *Mikrobiologiya (USSR) 1959, v. 28, no. 3, p. 473-475.

Topics are noted of papers that were read at the conference held in Moscow from October 13 through October 15, 1958. Authors, titles, and brief summaries are given of some of the reports.

Kuznetsov, S. I.
PETROLEUM MICROBIOLOGY; AN INTRODUCTION TO MICROBIOLOGICAL PETROLEUM ENGINEERING BY E. BEERSTECHER: BOOK REVIEW. [1960] 4p.
Order from LC or SLA mi$1.80, ph$1.80 60-14338

Trans. of Mikrobiologiya (USSR) 1955, v. 24, no. 3 [p. 382-384].

Liu, Yuan-yuan and Li, P'ei-yun.
EXPERIMENTAL STUDIES ON AIR-BORNE INFLUENZA INFECTION AND THE DISINFECTION OF AIR. 6 Apr 60, 31p. JPRS: 2480.
Order from OTS $1.00 60-11467

Trans. of Jen-min Pao-chien (Chinese People's Republic) 1959, v. 1, no. 12, p. 1100-1111.

Mishustin, E. N.
MICROBIOLOGY IN THE CHINESE PEOPLE'S REPUBLIC (Mikrobiologiya v Kitayskoy Narodnoy Respublike). 25 Jan 60, 9p. Trans. V-1520.
Order from LC or SLA mi$1.80, ph$1.80 60-15947

Trans. of Priroda (USSR) 1956, v. 45, no. 5, p. 71-73.

Observations made during a visit to various institutions are reported: excellent microbiological laboratories are equipped with apparatus produced in the Chinese People's Republic. Intensive work is being done on the development of antibiotics and of plasma extenders, especially dextran. Investigations which relate to the leather and brewing industries, and to soil science are mentioned. Promising results have followed experiments in the use of microorganisms to inhibit cotton wilt.

Zarubina, Z. M., Lyalikova, N. N., and Shmuk, Ye. I.
INVESTIGATION OF THE MICROBIOLOGICAL OXIDATION OF THE PYRITE OF COAL (Issledovaniy Mikrobiologicheskogo Okisleniya Pirita Uglya). [1960] [6]p.
Order from LC or SLA mi$1.80, ph$1.80 60-15294

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izv[estiya]: Metallurgiya i Toplivo, 1959, no. 1, p. 117-119.

A culture of thiobacillus ferrooxidans oxidized coal pyrite. In control experiments, where the bacteria were killed with 2% mercuric chloride, the pyrite was not oxidized. In 30 days up to 27% of the sulfur was removed, transforming the pyrite into iron sulfate. During this interval atmospheric oxidation of the pyrite was not observed.

Neurology and Psychiatry

NEUROSES, PSYCHOPATHY AND REACTIVE PSYCHOSES. 28 Jan 60, 62p. JPRS: L-2003-D.
Order from OTS $1.75 60-31027

Trans. of mono. Neorology, Psikhopatii i Reaktivnyye, Moscow, 1959.

Kayushin, L. P. and Lyudkovskaya, R. G.
STUDY BY THE INTERFERENCE METHOD OF ELASTIC-VOLUMETRIC CHANGES IN THE NERVE DURING EXCITATION, tr. by P. V. DePorte.
27 Nov 59, 8p. (4 figs. omitted) 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-13043

Trans. of Akademiya Nauk SSSR. Doklady, 1954, v. 95, no. 2, p. 253-255.

Pichler, E.
PSYCHIATRIC PHARMACOTHERAPY IN GERIATRICS (Zur Psychiatrischen Pharmakotherapie in der Geriatrie). [1960] 14p. 20 refs.
Order from SLA mi$2.40, ph$3.30 60-14536

Trans. of Wien[er] Klin[ische] W[o]ch[e]nschr[ift] (Austria) 1958, v. 70 [no. 46] p. 921-924.

Ritalin (methylphenidylacetate) combined with small doses of Serpasil (Reserpine) was used successfully where mental capacity in old age had generally declined, in the so-called failures in middle age and in presenile and senile depressions. In nervous agitation and in various anxious-neurasthenic states, a combination therapy of Doriden (glutethimide) and Serpasil proved to be particularly useful.

Svirinovskiy, Ya. Ye. and Shostakovich, B. V.
COMPULSORY TREATMENT AS ONE OF THE METHODS OF PREVENTING THE REPEATED SOCIALLY DANGEROUS ACTIONS OF MENTALLY DERANGED PATIENTS. 26 Feb 60, 4p. 2 refs. JPRS: 2294.
Order from OTS $0.50 60-11330

Trans. of Sudebno-Meditsinskaya Ekspertiza (USSR) 1959 [v. 2] no. 3, p. 47-49.

In order to ensure continuity in the treatment and observation of patients who have undergone compulsory treatment, it is expedient to enlist the rayon psychiatrist as a member of the commission on compulsory therapy. In order to prevent dangerous actions by mental patients, it is necessary to expand the rights of rayon psychiatrists in regard to the hospitalization of these patients. In order to achieve better adaptation of the patient to the social environment following cessation of compulsory treatment the appropriate commissions in the psychiatric hospitals must submit recommendations on a wider basis on the subsequent work arrangement for the patient, on guardianship, and on placement in psychiatric colonies, social security institutions, etc. (Author)

Pathology

MILITARY MEDICAL JOURNAL, 1959, NO. 5.
28 Mar 60, 151p. JPRS: 2443.
Order from OTS $3.00 60-11443

Trans. of Voyenno-Meditsinskiy Zhurnal (USSR) 1959, no. 5.

NEWS OF SOVIET MEDICAL SCIENCES: SELECTED ARTICLES. 9 Apr 60, 13p. JPRS: 2429.
Order from OTS $0.50 60-11432

Trans. of 6 unsigned articles (chronicles) from selected Soviet periodicals.

THE PREVENTION OF SILICOSIS BY METALLIC ALUMINUM: REPT. ON THE PRESENT STATUS OF THE INVESTIGATION. [1960] 6p. 8 refs.
Order from SLA mi$1.80, ph$1.80 60-14354

Trans. of Aluminium (Germany) 1940 [v. 22, no. 10] p. 578-[579].

See also 60-14353

PROBLEMS OF ONCOLOGY, 1959, VOL. 5, NO. 6.
Feb 60, 152p.
Order from PP $60.00/year

Trans. of Voprosy Onkologii (USSR) 1959, v. 5, no. 6, p. 643-768.

VOYENNO-MEDITSINSKIY ZHURNAL (USSR) 1958, NO. 3. SELECTED ABSTRACTS [Military Medical Journal]. [1960] [7]p. SOV/177-58-3-(8-9, 13-14, 24)/29.
Order from LC or SLA mi$1.80, ph$1.80 60-17030-3

Consists of selected abstracts in English.

Albot, G., Bonnet, G. F., and Delavierre, Ph.
EXPERIMENTAL GALLBLADDER DYSPLASIAS DUE TO OVERLOADING THE BILE WITH STEROIDS (Dysplasies Vésiculaires Expérimentales par Surcharge Biliaire en Substances Stéroides). [1960] 29p. 18 refs.
Order from SLA mi$2.70, ph$4.80 60-14548

Trans. of Sem[aine des] Hôp[itaux de Paris] (France) 1959, v. 35 [no. 60/61] p. 2294-2301.

Arnold, Otto Heinrich.
THE SO-CALLED TRENCH NEPHRITIS. VI. ETIOLOGY (die sogenannte Feldnephritis) tr. by W. H. Everhardy. 1 Sep 59, 17p. (refs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-19272

Trans. of Deutsche Medizinische Wochenschrift. Schriftenreihe (Germany) 1944, no. 8, p. 126-136.

Crosato, Francesco and Zappoli, Roberto.
RETOTHELIAL SARCOMAS WITH PRIMARY INTRACRANIAL DEVELOPMENT (I Retotelsarcomi a Primitivo Sviluppo Endocranico) tr. by P. DePorte. 19 May 59 [76]p. 85 refs.
Order from LC or SLA mi$4.50, ph$12.30 59-16348

Trans. of Rivista di Patologia Nervosa e Mentale (Italy) 1958, v. 79, no. 1, p. 149-188.

Huggins, D. W. and Medeiros, C. Coelho de
TREATMENT OF INTESTINAL AMEBIASIS WITH 11,925-C (ENTOBEX) CIBA (Tratamento da Amebiase Intestinal Pelo 11,925-C (Entobex) CIBA.). [1960] 7p. 6 refs.
Order from SLA mi$1.80, ph$1.80 60-14540

Trans. of a Folha Medica (Brazil) 1959, v. 40, 25 Mar, p. 44ff.

Kreps, Ye. M., Domontovitch, Ye. N. and others.
THE PHYSIOLOGY AND PATHOLOGY OF RESPIRATION, HYPOXIA AND OXYGEN THERAPY: [EXTRACTS]. 12 Jan 60, 127p. 4 refs. JPRS: L-1988-D.
Order from OTS $2.75 60-31015

Trans. of mono. Fiziologiya i Patologiya Dykhaniya, Gipoksiya i Oksogenoterapiya, Kiev, 1958, p. 40-43, 67-74, 108-117, 126-134, 160-166, 181-185, 189-199, 204-210, 295-300, 315-317 and 404-413.

Ku, Hsing-yuan.
SURVEY OF COMBINED-PRACTICE (CHINESE NATIVE AND WESTERN MEDICINE) CLINICS: AN INVESTIGATION AND STUDY OF JOINT CLINICS IN SHANGHAI. 15 Apr 59, 28p. 4 refs. JPRS: 1480-N.
Order from OTS $0.75 59-13425

Trans. of I-hsüeh-shih yü Pao-chien Tsü-chih (Chinese People's Republic) 1958, v. 2, no. 3, p. 192-197.

Lapin, B. A., ed.
PROBLEMS OF INFECTIOUS PATHOLOGY IN EXPERIMENTS ON MONKEYS. [1960] [196]p. 222 refs.
Order from LC or SLA mi$8.70, ph$30.30 60-14270

Trans. of mono. [Voprosy Infektsionnoy Patologii v Eksperiments na Obez'yanakh] Sukhumi, 1958.

Most of the articles in this collection deal with intestinal infections.

Mayskiy, I. N., Lomakin, M. S., and Filatov, P. P
THE PROBLEM OF THE METASTATIC SPREAD OF MALIGNANT TUMORS, tr. by P. V. DePorte.
25 Jan 60, 32p. 87 refs. No. 1-18a-60.
Order from LC or SLA mi$3.00, ph$6.30 60-15081

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1959, v. 14, no. 2, p. 22-32.

Survey article. No original research is indicated.

Muzykantov, V. A.
PROBLEMS OF COORDINATING MEDICO-BIOLOGICAL RESEARCH. 1 Apr 60, 7p. JPRS: 2426.
Order from OTS $0.50 60-11430

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1956 [v. 11] no. 12, p. 32-36.

Parin, V. V.
FOR THE WELFARE OF MAN DEVELOPMENT OF MEDICAL SCIENCE IN THE USSR. 6 Apr 60, 7p. JPRS: 2421.
Order from OTS $0.50 60-11427

Trans. of Priroda (USSR) 1959 [v. 48] no. 10, p. 51-54.

Goals for the medical profession in the USSR include detailed investigation of the problems of cardiovascular disease and their solution, the eradication of infectious diseases, development of toxicology for the benefit of the growing chemical industry, etc.

Parin, V. V. and Meyerson, F. Z.
THE MECHANISM OF HYPERTENSION OF THE PULMONARY CIRCULATION. 25 Mar 60, 12p.
22 refs. JPRS: 2357.
Order from OTS $0.50 60-11386

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 12, p. 26-33.

Rogozin, I. I. and Mikhaylov, I. F.
SUCCESS OF EPIDEMIOLOGY IN THE PEOPLE'S REPUBLIC OF CHINA (Uspekhi Epidemiologii v Kitayskoy Narodnoy Republike). 23 Dec 59, 15p.
7 refs. Trans. V-1512.
Order from LC or SLA mi$2.40, ph$3.30 60-13490

Trans. of *Zhurnal Mikrobiologii Epidemiologii i Immunobiologii (USSR) 1959 [v. 30] no. 10, p. 3-8.

Rosicky, Bohumir.
NATURAL DISEASE FOCI AND RESEARCH IN SOUTHEASTERN SLOVAKIA. [1960] 10p.
Order from SLA mi$1.80, ph$1.80 60-14297

Trans. of Ceskoslovenska Parasitologie, 1954, v. 1, p. 15-22.

This brief survey shows how zoology and parasitology in collaboration with other fields, are clarifying the role of reservoir animals and vectors in the individual biotopes of the natural focus, and how they are contributing to the solution of concrete problems in a certain natural focus of a communicable disease. From the discovery of the cycle of the disease agent in nature, of the host cycle of certain vectors, and of the seasonal dynamics of the main components of the focus, we can proceed to preventive measures, the purpose of which is to protect the working man who circulates in the natural focus of the communicable disease. (Author)

Sigalov, A. B.
HYPOGALACTIA IN PARTURIENTS SUFFERING FROM CARDIOVASCULAR DISEASES. 22 Mar 60, 7p. 6 refs. JPRS: 2340.
Order from OTS $0.50 60-11363

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 12, p. 61-67.

Hypogalactia is encountered much more frequently in parturients who suffer from cardiovascular diseases accompanied by symptoms of impaired blood circulation than in healthy parturients. Surgical interventions and the concomitant retarded breast-feeding of the infant, loss of blood in labor, and painful sensations further reduce lactation in this group of women. Early hospitalization of pregnant women with diseases of the cardiovascular system, together with timely therapy, often leads to a stable elimination of the symptoms of impaired circulation, contributes to the reduction of the number of surgical interventions in labor, and serves as prophylactic measures of hypogalactia in these patients. (Author's conclusions)

Takahashi, K., Enomoto, H., and Momiyama, H.
AN AGMATINE-LIKE AMINE DISCOVERED IN THE URINE OF PATIENTS WITH HEPATO-CEREBRAL DISEASES OF THE INOSE TYPE. [1960] 4p.
Order from ATS $7.80 ATS-55M38J

Trans. of Igaku to Seibutsugaku (Japan) 1954, v. 32, no. 2, p. 81-83.

Takahashi, K., Enomoto, H. and others.
STUDIES ON THE AGMATINE-LIKE AMINE IN THE URINE OF PATIENTS WITH HEPATIC COMA, II. [1960] 4p.
Order from ATS $7.50 ATS-56M38J

Trans. of Igaku to Seibutsugaku (Japan) 1954, v. 32, no. 6, p. 279-281.

See also 60-12837

Trop, I. Ye.
THE SCIENTIFIC CONFERENCE OF THE IRKUTSK ANTIPLAGUE INSTITUTE (USSR). 19 Feb 60, 4p. JPRS: 1175-D.
Order from OTS $0.50 60-31056

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959 [v. 30] no. 10, p. 155-156.

Topics are noted of papers that were presented at the conference of November 25-29, 1958. Authors and titles of some of the papers are given.

Trufanov, A. V.
FRACTIONATION OF BRAIN TUMOR PROTEINS BY PAPER ELECTROPHORESIS. 7 Apr 60, 9p. 12 refs. JPRS: 3148.
Order from OTS $0.50 60-31119

Trans. of Voprosy Meditsinskoy Khimii (USSR) 1959, v. 5, no. 6, p. 403-408.

Pharmacology and Toxicology

Faybich, M. M.
CONCERNING THE INCREASE OF IMMUNOGENIC PROPERTIES OF THE ANTI-TULAREMIAN LIVING VACCINE (K Voprosu o Povyshenii Immunogennosti Zhivoy Vaktsiny Protiv Tulyaremii). 11 Jan 60, 12p. 21 refs. Trans. V-1515.
Order from LC or SLA mi$2.40, ph$3.30 60-13493

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959 [v. 30] no. 10, p. 20-24.

It was established that a 0.2-per-cent agar solution, a one-per-cent gelatin solution, a 1-to-5- per-cent gum arabic solution, as well as a 5-per-cent Malva decoction and a 5-per-cent glycerin solution stimulated the 'immunogenicity' of the living tularemian vaccine, whereas the solutions of gum of silver acacia and of starch did not possess the mentioned property. The minimal immunizing dose of the living tularemia vaccine for white mice, when injected in solutions of agar or gelatin, was 10 microbes; in the solution of gum arabic, or in Malva decoction, as well as in a 5-per-cent glycerin solution, it was 100 microbes, whereas in solutions of gum of silver acacia or starch, the minimal dose was 1000 microbes according to the optic standard. The stimulating effect of the agar solution, injected with the living tularemia vaccine, was established while studying immunity not only in animals, but also in man. The 'reactogenicity' of the living vaccine was not increased when introduced subcutaneously in agar, gum arabic or gelatin solutions. The reaction in man to subcutaneous injections of agar (0.2 percent), gelatin (1 percent), and gum arabic (1 percent) solutions was of greater intensity than in cases when the physiological salt solution was injected.

Ivashkevich, P. A., Mikhaylov, B. Ya. and others.
CONCERNING THE TERMS OF THE EFFICACY OF THE STI VACCINE AND THE METHODS FOR CONTROLLING IT (O Srokakh Godnosti i Metodakh Kontrolya Sibireyazvennoy Vaktsiny STI). 13 Jan 60, 7p. (1 photo. omitted). Trans. V-1516.
Order from LC or SLA mi$1.80, $1.80 60-13494

Trans. of Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959 [v. 30] no. 11, p. 45-47.

The anthrax STI vaccine, prepared and stored according to the methods specified in the "Instructions" preserves its biological properties up to 14 years (period of observation). Under ordinary conditions of preservation, the period for the shelf life of the vaccine to be used for immunization may be prolonged not less than to 5-8 years. In addition to the ordinary methods used for the control of the STI vaccine, as electron microscopy, counting of the spores in the chamber, and determination of living spores by the aid of the microculture method may be applied; whereas the general number of spores and the numerical amount of living spores may be considered as the basic index for the practical evaluation of the vaccine concerning its efficiency. (Author)

Ivashkevich, P. A., Mikhaylov, B. Ya. and others.
DETERMINATION OF SPORE VIABILITY IN THE ANTHRAX STI VACCINE WITH THE AID OF MICROCULTURES (Opredeleniye Zhiznesposobnosti Spor v Sibireyazvennoy Vaktsine STI s Pomoshch'yu Mikrokul'tur). 6 Jan 60, 8p. 2 refs. Trans. V-1514.
Order from LC or SLA mi$1.80, ph$1.80 60-13492

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959, v. 30, no. 10, p. 72-75.

A method is described for the determination of the viability of spores in suspensions of the STI anthrax vaccine by the aid of microcultures. The method is more accurate, rapid, and also less laborious than the counting of colonies.

Sakaguchi, T. and Taguchi, K.
METAL CHELATE COMPOUNDS OF TETRACYCLINE DERIVATIVES, XI. ISOLATION AND PROPERTIES OF TETRACYCLINE METAL CHELATES. [1960] 7p.
Order from ATS $12.50 ATS-41M38J

Trans. of Yakugaku Zasshi (Japan) 1959, v. 79, no. 11, p. 1381-1385.

Stepanik, J.
THE BEHAVIOR OF SCLERAL RIGIDITY DURING THE PRISCOLINE TEST (Das Verhalten der Skleralrigiditätt Während der Priscolprobe). [1960] 4p. 5 refs.
Order from SLA mi$1.80, ph$1.80 60-14544

Trans. of Klin[ische] Monatsbl[ätter] f[ür] Augenheilk[unde] (West Germany) 1959, v. 134 [no. 6] p. 833-835.

In 54 eyes affected with chronic non-congestive glaucoma the rigidity of the sclera was measured before and after a subconjunctival injection of 10 mg of Priscoline. On comparing the two readings the difference was not found to be significant statistically ($P > 0.05$). (Author's summary)

Yakovlev, B. V. and Kern, V. G.
DECONTAMINATIONAL PROPERTIES OF CHLORAMINE SOLUTIONS IN RELATION TO THE DEGREE OF THEIR DISSEMINATION (AUTOREPORT) (Obezzarazhivayushchiye Svoystva Rastvorov Khloramina v Zavisimosti ot Stepeni ikh Raspyleniya (Avtoreferat)). 18 Jan 60, 4p. Trans. V-1517.
Order from LC or SLA mi$1.80, ph$1.80 60-13495

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959 [v. 30] no. 11, p. 119.

Radiobiology

Dubinin, N. P., Sidorov, B. N., and Sokolov, N. N.
GENETIC EFFECT OF FREE RADICALS (Geneticheskiy Effekt Svobodnykh Radikalov). 8 Apr 60, 13p. (1 fig. omitted) 24 refs. JPRS: 2504.
Order from OTS $0.50 60-11489

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 128, no. 1, p. 172-175.

Grodzenskiy, D. E.
RADIOBIOLOGY. 9 Dec 59 [26]p. AF 1256229.
Order from LC or SLA mi$2.70, ph$4.80 60-13210

Trans. of mono. Radiobiologiya, Moscow, 1958.

A survey

Khudadov, G. D.
A METHOD OF TAGGING INSECTS BY GIVING THEM RADIOACTIVE ISOTOPES WITH FOOD. 8 Apr 60, 20p. 18 refs. JPRS: 2453.
Order from OTS $0.75 60-11452

Trans. of Moskovskoye Obshchestvo Ispytateley Prirody. Byulleten'. Otdel Biologi[cheskiy] (USSR) 1959, v. 64, no. 3, p. 35-45.

For purposes of tagging insects by adding a radioisotope to their food, those radioisotopes are suitable which possess beta radiation with a mean energy of higher energy levels of beta-spectra of an 0.8 Mev order and higher, and which have a half-life of not less than one week. Upon an increase of radioisotope concentration in food, there is a proportional increase of the radioactivity of the insects which have been fed on it. To carry out experiments with tagged insects for a period from 10 to 20 days, one can tag them by giving them food containing a radioisotope in a concentration of one to three microcuries per ml. To carry out longer experiments, the isotope concentration in food must be correspondingly increased. (Author)

Komendantova, A. L., Krushcheva, Ye. A. and others.
CHARACTERISTICS OF THE COURSE OF COMBINED AFFECTIONS CAUSED BY THE ACTION OF IONIZING RADIATION AND BURN TRAUMA. 22 Mar 60, 8p. 6 refs. JPRS: 2306.
Order from OTS $0.50 60-11339

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4, no. 10, p. 54-58.

Lapin, B. A., ed.
ACUTE RADIATION SICKNESS AND ITS DELAYED CONSEQUENCES (Ostraya Luchevaya Bolezn i yeye Otdalennye Posledstviya) tr. by Lydia Venters. Abstracts of rept. and information on the conference of 19-21 Oct 59. Dec 59, 34p.
Order from OTS $1.25 AEC-tr-3924

Trans. of mono. Referaty Dokladov i Soobshcheniy na Konferentsii 19-21 Oktyabrya 1959, Institut Eksperimental'noy Patologii i Terapii, Akademii Meditsinskikh Nauk SSSR, Sukhumi, 1959.

Surgery

Kucherenko, A. Ya.
CHANGES IN THE ELECTROCARDIOGRAM OF PATIENTS ON THE OPERATING TABLE BEFORE AND AFTER LOCAL ANESTHESIA. 4 Apr 60, 4p. JPRS: 2468.
Order from OTS $0.50 60-11465

Trans. of Novyy Khirurgicheskiy Arkhiv (USSR) 1959, no. 6, p. 13-17.

The presence of electrocardiographic changes on the operation table prior to operation graphically emphasizes the need for the broad introduction of a therapeutic-protective regimen into the practice of surgical departments. (Author's conclusion)

Vyroubal, B.
ZEPHIROL IN SURGERY, tr. by P. M. M. 15 Feb 56, 3p. 10 refs.
Order from SLA mi$1.80, ph$1.80 60-10880

Trans. of Fortschritte der Therapie (Germany) p. 507-509. [sic]

Benzalkonium chloride was used effectively in 350 cases of wounds and punctures which were generally dirty. After successful application in treatment of fresh injuries, the disinfectant was used also in surgery (e.g., appendectomy): all wounds healed without suppuration, and there was no indication of harmful effect on the peritoneum.

Zoology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS

Contents:
Section G. Zooparasitology.
1958, no. 22, abstracts 99530-99679, JPRS: 2512, 60-11495, $0.50
1959, no. 3, abstracts 10273-10398, JPRS: 2579, 60-11559, $1.00
1959, no. 6, abstracts 24170-24324, JPRS: 2442, 60-11442, $1.00

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Balat, Frantisek and Rosicky, Bohumir.
BIRDS OF THE LOWLAND FORESTS; THEIR MOVEMENTS AND IMPORTANCE IN A NATURAL FOCUS. [1960] 23p. 18 refs.
Order from SLA mi$2.70, ph$4.80 60-14298

Trans. of Československa Parasitologie, 1954, v. 1, p. 23-44.

Birds as hosts to ticks in Czechoslovakia are considered.

Chapskiy, K. K.
AN ATTEMPT TOWARDS A REVISION OF THE SYSTEMATICS AND DIAGNOSTIC FEATURES OF SEALS BELONGING TO THE SUB-FAMILY PHOCINAE (Opyt Peresmotra Sistemy i Diagnostiki Tyuleney Podsemeystva Phocinae). Jan 60 [40]p. 24 refs. RTS 1283.
Order from LC or SLA mi$3.00, ph$6.30 60-15429

Trans. of A[kademiya] N[auk] SSSR. Zoologicheskiy Institut. Trudy, 1955, v. 17, p. 160-199.

Krokhin, E. M.
DETERMINATION OF THE DAILY FOOD RATION OF YOUNG SOCKEYE AND THREE-SPINED STICKLEBACK BY THE RESPIRATION METHOD (Opredeleniye Sutochnykh Pishchevykh Ratsionov Molodi Krasnoy i Trekhigloy Kolyushki Respiratsionnym Metodom). 1959, [17]p. 20 refs. Trans. series no. 209.
Order from NRCC NRCC C-3057

Trans. of Tikhookeanskiy Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva i Okeanografii. Izvestiya (USSR) 1957, v. 44, p. 97-110.

Rannak, L. A.
STATE OF THE STOCK AND OUTLOOK FOR THE CATCHES OF BALTIC HERRING, tr. by Thomas R. Forsythe. June 59 [9]p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-13245

Trans. of Ryb[noye] Khoz[yaystvo] (USSR) 1958, v. 34, no. 10, p. 13-16.

Rosicky, Bohumir and Balat, Frantisek.
THE TICK (IXODES RICINUS L.) AS A BIRD PARASITE IN A NATURAL FOCUS. [1960] 36p. 19 refs.
Order from SLA mi$3.00, ph$6.30 60-14299

Trans. of Ceskoslovenska Parasitologie, 1954 [v. 1] p. 45-76.

Vogel, H.
STUDIES ON THE ECHINOCOCCUS MULTILOCULARIS OF SOUTH GERMANY. I. THE TAPEWORM STAGE OF STRAINS OF HUMAN AND ANIMAL ORIGIN (Über den Echinococcus Multilocularis Suddeutschlands. I. Das Bandwurmstadium von Stammen Menschlicher und Tierischer Herkunft) tr. by H. A. G. Nathan. 1960, 84p. 55 refs. Technical trans. 858.
Order from NRCC NRCC C-3284

Trans. of Z[eitschrift für] Tropenmed[izin] und Parasitol[ogie] (West Germany) 1957, v. 8, no. 3, p. 404-456.

A detailed report is given of the morphology of a large number of tapeworms in all stages of development with special emphasis on sexual organs, rostellar hooks of larval and adult scoleces, body length and number of segments. This study shows beyond doubt that both the wild animal strains and the human strains belong to one and the same species, i.e., Echinococcus multilocularis Leuckart 1863. (Extracted from author's summary)

CHEMISTRY

*AKADEMIYA NAUK SSSR. OTDELENIYE KHIMICHESKIKH NAUK. IZVESTIYA, 1959, NO. 12, P. 2067-2261 (News of the Academy of Sciences of the USSR, Department of Chemical Sciences). [1960] 1v. [SOV[-62-59-12-(1-43)/43.
Order from OTS $0.70, $4.00/6 mo. PB 141 055T-25
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE, 1959, NO. 4, P. 547-739. 1960, 1v.
Order from CB $5.00, $45.00/year

Trans. of Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1959, no. 4, p. 571-[759].

JOURNAL OF GENERAL CHEMISTRY OF THE USSR, 1959, VOL. 29, NO. 3, P. 693-1021. 1960, 1v.
Order from CB $10.00, $90.00/year

Trans. of Zhurnal Obshchey Khimii (USSR) 1959, v. 29, no. 3, p. 701-[1042].

LENINGRAD U. VESTNIK (USSR) 1959 [VOL. 14] [NO. 16] SERIYA FIZIKI I KHIMIYI, NO. 3 (Herald of Leningrad University, Physics and Chemistry Series). [1959] 1v. [SOV]-54-59-3-(1-21)/21.
Order from OTS $0.60, $2.25/year PB 141 050T-8
Foreign $0.85, $3.25/year

Consists of abstracts in English.

REFERATIVNYY ZHURNAL. KHIMIYA (USSR) 1959, NO. 16, P. 7-557, ABSTRACTS 56049-59581 [Journal of Abstracts. Chemistry]. [1960] [66]p. SOV/81-59-16-(56049-59581).
Order from LC or SLA mi$3.90, ph$10.80 60-17024-16

Consists of abstracts in English.

Rudakov, G. A.
COMPETITION FOR THE BEST WORKS IN CHEMISTRY AND CHEMICAL ENGINEERING. 15 Mar 60, 6p. JPRS: 2363.
Order from OTS $0.50 60-11392

Trans. of Khimicheskaya Nauka i Promyshlennost' (USSR) 1959, v. 4, no. 2, p. 271-273.

The names of the winners of the 1958 contest (covering the work of 1957), the titles of their papers, and the amount of each award are given.

Yun, Tze-ch'iang.
CHINA'S ADVANCES IN CHEMISTRY IN THE PAST DECADE. 14 Mar 60, 10p. JPRS: 2341.
Order from OTS $0.50 60-11364

Trans. of Hua Hsüeh Pao (Chinese People's Republic) 1959, v. 25, no. 5, p. 1-4.

Bochkova, O. P.
INDUSTRIAL APPLICATIONS OF QUANTITATIVE SPECTRAL ANALYSIS OF INERT GASES (O Promyshlennom Ispol'zovanii Metodov Kolichestvennogo Spektral'nogo Analiza Inertnykh Gazov). 3 Nov 59 [3]p. AF 1256277.
Order from LC or SLA mi$1.80, ph$1.80 60-13186

Trans. of excerpt from Leningrad U. Vestnik (USSR) 1959 [v. 14] no. 16, Seriya Fiziki i Khimii, no. 3, p. 19-24.

This excerpt names the four plants (i.e., the Moscow electric bulb plant, the All-Union Scientific Research Institute of Oxygen Apparatus and Machinery, the Balashikha oxygen plant, and the All-Union Electrotechnical Institute) that produce inert gases (argon, neon, helium, krypton, and xenon). A table is included that shows the admixtures of hydrocarbons, nitrogen, oxygen, and hydrogen contained in each gas produced by each plant.

Dekjtrikyan, S. A.
ASSAYING TRACES OF GERMANIUM IN ORES AND MINERALS (K Metodike Opredeleniya Malykh Kolichestv Germaniya v Rudakh i Mineralakh) Mar 60 [7]p. 7 refs. RTS 1419.
Order from LC or SLA mi$1.80, ph$1.80 60-15887

Trans. of Akademiya Nauk Armyanskoy SSR, Yerevan. Izvestiya. Seriya Geologicheskikh i Geograficheskikh Nauk, 1957, v. 10, no. 4, p. 121-126.

Sodium peroxide provides a good means of digesting ores in order to assay for traces of germanium. The germanium is precipitated completely by ammonia if such iron is present. The Ge is separated completely from other elements by extracting it into CCl_4 from HCl (4:1). The method is a rapid one for assaying Ge in ores at the 0.001-0.003% level. (Author)

Dobrolyubskaya, T. S.
FLUORIMETRIC METHOD OF DETERMINING URANIUM (Fluorimetricheskiy Metod Opredeleniya Urbana). 7 Apr 60, 9p. 12 refs. JPRS: 2495.
Order from OTS $0.50 60-11483

Trans. of Akademiya Nauk SSSR. Komissiya po Analiticheskoy Khimii. Trudy, 1958, v. 8, no. 11, p. 178-182.

A literature survey indicates that the center of fluorescence of the bead is represented by a uranyl ion surrounded by fluorine ions. Apparently, the uranyl ion occupies the position of the sodium ion in the crystal lattice of NaF. The presence of the fluorine ion in the composition of the bead has an essential significance in the process of luminescence. If, instead of sodium fluoride as a base for the preparation of melts activated by a uranium compound, other bases are taken, for example Na_2CO_3 or Na_2SiO_3, then, in such

melts, upon excitation of λ365 mμ, the luminescence characteristic of the NaF-U melt is absent.

Gel'man, N. E., Korshun, M. O. and others.
MICRODETERMINATION OF CARBON AND HYDROGEN IN ORGANIC COMPOUNDS BY ELECTRICAL CONDUCTIVITY MEASUREMENTS. [1960] 4p.
Order from ATS $6.50 ATS-14M38R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 129, no. 5, p. 1046-1048.

Rossi, Luis.
TOUCH AND DROP METHODS; REAGENT FOR THE ESTIMATION OF GOLD. 1938, 2p. (4 equations omitted) 2 refs.
Order from SLA mi$1.80, ph$1.80 60-14432

Trans. of Quimica e Industria, Barcelona (Spain) 1935 [v. 12, no. 143] p. 277-278.

The reagent consists of 5 cc of a 1% solution of narcotine in concentrated H_2SO_4, 5 cc of a 10% solution of stannous chloride, and 5 cc of a 10% solution of ferrous sulfate. The procedure is as follows. Place a drop of the liquid to be analyzed on a small piece of filter paper. Pour over it a drop of reagent. In the presence of gold a spot of colloidal gold shows up immediately which is generally violet-blue, but may be reddish-violet depending on the size of the particles. The reaction is extremely sensitive even to 0.5 (grains?) of gold. This method is superior to that using dimethylaminobenzylrhodamine and to that using benzidine as well as that using ferrous sulfate and stannous chloride. This simple procedure enables one to detect gold in the presence of innumerable cations of the various analytical groups, thus eliminating H_2S which may precipitate gold in different ways.

Inorganic Chemistry

Antipin, L. N.
COMPLEX FORMATION IN FUSED BINARY SALTS. [1960] 20p. 38 refs.
Order from RIS $42.00 RIS R 772

Trans. of Uspekhi Khimii (USSR) 1956, v. 25, p. 632-642.

Hayek, E. and Newesely, H.
ON THE EXISTENCE OF TRICALCIUM PHOSPHATE IN AQUEOUS SOLUTION (Über die Existenz von Tricalciumphosphat in Wässriger Lösung) tr. by D. A. Sinclair. 1960, 12p. 21 refs. Technical Trans. 855.
Order from NRCC NRCC C-3250

Trans of Monats[hefte für] Chem[ie] (Austria) 1958, v. 89, no. 1, p. 88-95.

The ions of bivalent iron, manganese and magnesium, increasingly in that order, favour the precipitation of β-tricalcium phosphate, which is otherwise unstable in the aqueous system. The formation of the β-tricalcium phosphate is demonstrated radiographically, and is also shown in a simple manner by the change of pH compared with the inactive metal ions. The formation of anhydrous $Ca_3(PO_4)_2$ is important for the problem of the existence of the dihydrate, and secondly it provides a simple explanation for the citrate solubility of calcium phosphate precipitates which without these additions become transformed into insoluble hydroxylapatite. (Author)

Kornilov, I. I.
CHEMISTRY OF METALS AND SOME OF ITS AIMS (Metallokhimiya i Nekotoryye yeye Zadachi). 6 Dec 57 [21]p. 50 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-14516

Trans. of *Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1957, no. 4, p. 397-407.

Kornilov, I. I.
METALLOCHEMICAL TABLE OF CHEMICAL ELEMENTS (Metallokhimicheskaya Tablitsa Khimicheskikh Elementov). 17 Oct 57 [9]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14514

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 1, p. 106-109.

A brief analysis shows that the metallochemical table makes it possible in a general way to consider the problems of the chemical reaction of the metals with each other and with metalloids. It gives the possibility by the position of the metals in the periodic system and by the chemical properties issued from this, to determine into what types of reaction this or that metal is capable of entering with the other elements of the periodic system. By that table, one can determine the possibility of the formation of the solid solutions, of the metallic and ionic compounds for each of the metals, which occupy a definite place in the periodic system of elements, and to show what metals don't react and don't form solid solutions or compounds. The metallochemical table of elements eases the classification of the various types of the chemical reaction of metals during the formation by them of metallic alloys of various composition and structure.

Organic Chemistry

Alder, Kurt, Mönch, Joachim and others.
THE STERIC COURSE OF THE ADDITION OF BUTADIENE TO THE DOUBLE BOND OF THE BICYCLO-/1,2,2/-HEPTENE SYSTEM. [1960] 14p. 3 refs.
Order from SLA mi$2.40, ph$3.30 60-14521

Trans. of [Justus Liebigs] Ann[alen] der Chem[ie] (West Germany) 1959, v. 627, no. 1/3, p. 47-58.

The addition of butadiene to bicyclo (1, 2, 2)-heptene-2(Norbornene) and bicyclo (1, 2, 2)-heptadiene-(2, 5) (Norbornadiene) is described and evidence adduced that these are "exo additions." (Author)

Baramboym, N. K.
THE KINETICS OF MECHANICAL DESTRUCTION OF HIGH POLYMERS (Kinetika Mekhanicheskoy Destruktsii Vysokolimerov). Sep 58 [5]p. 7 refs.
C. T. S. no. 484.
Order from LC or SLA mi$1. 80, ph$1. 80 60-15695

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 3, p. 568-570.

An analysis showed that the kinetic curves of the changes in molecular weight with mechanical destruction (in a ball mill under a nitrogen atmosphere at -10°C) for various polymers can be expressed satisfactorily by $M_\tau = Ae^{-k\tau} + M_\infty$, where M_τ is the molecular weight at the time, τ, of destruction; $A = M_0 - M_\infty$; M_0 is the initial molecular weight; M_∞ is the coefficient of destruction; and k is the destruction velocity constant. Limiting values of M_∞ for the polymers studied were: polyvinylacetate 11000; acetylcellulose 10000; polymethylmethacrylate 9000; polystyrene 7000; and polyvinyl alcohol 4000. Values of constant k for the polymers were: polymethylmethacrylate 0. 1200; polystyrene 0. 0945; polyvinylacetate 0. 0468; and polyvinyl alcohol 0. 0237.

Berlin, A. A. and Parini, V. P.
SOME PECULIARITIES OF POLYNUCLEAR AROMATIC COMPOUNDS AND SYNTHESIS OF THERMOSTABLE POLYMERS [O Nekotorykh Osobennostyakh Mnogoyadernykh Aromaticheskokh Soyedineniy i Sinteze Termostoykikh Polimerov]. [1960] 7p.
Order from ATS $12. 00 ATS-70M39R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[eniy]. Khim[iya] i Khimicheskaya Tekhnol[ogiya] (USSR) 1958, no. 4, p. 122-127.

Bianchi, U. and Rossi, C.
THE CRYOSCOPY OF HIGH-MOLECULAR-WEIGHT COMPOUNDS. 23 Dec 59 [14]p. 6 refs.
Order from SLA mi$2. 40, ph$3. 30 60-14239

Trans. of [la] Chim[ica] e [l]'Ind[ustria] (Italy) 1959, v. 41 [no. 9] p. 875-879.

The measurement of molecular weights below 50, 000 presents particular difficulties. An apparatus for differential cryoscopy, which uses two thermistors as temperature-sensitive elements, is described. Working with an unbalanced bridge, it is possible to determine temperature differences with a precision of ±0. 00005 °C., which permits measurements of molecular weights to 50, 000. (Author)

Bokova, E. N.
THE FORMATION OF HEAVY GASEOUS HYDROCARBONS IN THE ANAEROBIC DECOMPOSITION OF ORGANIC SUBSTANCES. [1960] 5p.
Order from ATS $6. 90 ATS-94M38R

Trans. of *Geol[ogiya] Nefti i Gaza (USSR) 1959, v. 3, no. 8, p. 44-47.

Castelli, Carlo Longiave and Croce, G. F.
PROCESS FOR THE PREPARATION OF POLYMERS OF BUTADIENE AND PRODUCTS OBTAINED BY THIS PROCESS. [1960] 20p.
Order from LC or SLA mi$2. 40, ph$3. 30 60-14236

Trans. of Belgian patent 573 680, by Montecatini (Italian priorities: 6 Dec 57 and 24 Dec 57) dated 6 Dec 58 and 6 June 59.

By using certain catalysts selected from among those known as "coordination catalysts", and containing organometallic bonds, it is possible to obtain directly a raw butadiene polymer that is at least 90%, and in certain cases more than 95% 1, 4 cis. The preparation of a butadiene polymer, includes the polymerization of butadiene in the presence of a catalyst formed by placing an organometallic compound of a metal of Groups II or III of the periodic table of Mendeleev in contact with a compound of a metal of Group VIII of that table.

Ercoli, R., Calderazzo, F., and Alberola, A.
SYNTHESIS OF BIS(TRICARBONYLCHROMIUM) COMPLEXES BY REACTION OF BINUCLEAR AROMATIC COMPOUNDS WITH TRICARBONYL-CHROMIUM-ARENES. [1960] [17]p. 6 refs.
Order from SLA mi$2. 40, ph$3. 30 60-14560

Trans. of [la] Chimica e l'Industria (Italy) 1959, v. 41, no. 10, p. 975-980.

The synthesis and the properties are described of a few new bis(tricarbonylchromium) complexes of the general formula $(CO)_3CrXCr(CO)_3$ where X = biphenyl, benzidine, 3, 3'-dimethyl-benzidine, diphenylmethane, diphenylamine, 1, 2-diphenylethane or trans-1, 2-diphenylethylene. The complexes were obtained through an exchange involving the aromatic ligand, by reacting the above compounds with an excess of tricarbonylchromium-benzene or tricarbonylchromium-toluene at 160°C under nitrogen. The reaction proceeds according to the equation $2Cr(CO)_3C_6H_6 + X \rightleftharpoons (CO)_3CrXCr(CO)_3 + 2C_6H_6$ and has the characteristics of a chemical equilibrium. If a $Cr(CO)_3C_6H_6$:X ratio of 4 is used, yields of approximately 60 to 70% are obtained; the yields are considerably lower for ratios around 2, due to the formation of the corresponding mono-tricarbonylchromium complexes, some of which have been isolated and described for the first time. The bis(tricarbonylchromium) complexes obtained are crystalline solids, yellow to red in color and melting with decomposition at temperatures above 200°C. In general, they are less soluble and more resistant to oxidation than the mono-tricarbonylchromium-arenes. Catalytic hydrogenation of bis(tricarbonylchromium)stilbene in the presence of Raney nickelyields bis(tricarbonylchromium)diphenylethane in

moderate yields due to partial decomposition of the complex. An X-ray diffraction study of bis(tricarbonylchromium)biphenyl indicates that the two tricarbonylchromium groups occupy trans positions with respect to the plane passing through the rings. (Paper presented at the XVII International Congress of Pure and Applied Chemistry, Munich, Aug. 30 to Sept. 6, 1959.) (See also 59-10425)

Freydlina, R. Kh., Chukovskaya, E. Ts., and [Ts'ao] I.
ADDITION OF SILANES TO UNSATURATED COMPOUNDS IN THE PRESENCE OF IRON PENTACARBONYL. [1960] 5p.
Order from ATS $6.00 ATS-66M38R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 127, no. 2, p. 352-355.

Gertges, Heinz, Heinz, Hans Olaf, and Brocke, Werner.
PROCEDURE FOR THE PREPARATION OF FORMALDEHYDE FROM METHANE. [1960] 4p.
Order from LC or SLA mi$1.80, ph$1.80 60-14308

Trans. of German patent 1 050 752, Cl. 12 o 7/01, International Cl. C 07 c, by Bergbau Aktiengesellschaft Neue Hoffnung, Oberhausen, appl. 13 Nov 56, pub. of appl. 19 Feb 59, issued 6 Aug 59. (Agrees with the description 1 050 752 (B 42468 IVb/12o).

Hock, H., and Kropf, H.
SELF-OXIDATION OF HYDROCARBONS AND CUMENE-PHENOL SYNTHESIS, tr. by F.H.B. 13 Jan 59, 41p. 74 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-12936

Trans. of Angewandte Chemie (West Germany) 1957 [v.] 69, no. 10, p. 313-321.

This article (a lecture given at a plenary session of the General Convention of the Association of German Chemists in Hamburg, on September 22, 1956) contains a summary on the behavior of each type of hydrocarbon in the process of self-oxidation. In this summary, the mechanism of each process, including the case of catalytic acceleration, is discussed. Furthermore, some reactions of the peroxides produced in each case are considered, in particular the industrially important acid splitting of hydrogen peroxides. Finally, the present state of industrial cumene-phenol synthesis is discussed; the working methods are described in detail and approximate production figures are given. (Author)

Kabachnik, M. I. and Medved, T. Ya.
VINYLPHOSPHONIC ACID AND SOME OF ITS DERIVATIVES. [1960] 4p.
Order from ATS $8.00 ATS-86M38R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 12, p. 2142-2145.

Kainer, Franz.
MULTI-COMPONENT POLYMERIZATIONS; COPOLYMERS OF HYDROCARBONS AND ACID IMIDES [AND] COPOLYMERS FROM OLEFINIC BENZENES AND OLEFINIC DICARBOXYLIC ACID IMIDES (Mehrstoffpolymerisation). [1960] [6]p. 21 refs.
Order from SLA mi$1.80, ph$1.80 60-14311

Trans. of mono. Kurzes Handbuch der Polymerisationstechnik (A Short Handbook of Polymerization Techniques) v. 2, Leipzig, 1941, p. 157-161.

Köster, Roland.
BORON DERIVATIVES. I. PREPARATION OF BORON TRIALKYLS AND THEIR REACTIONS WITH OLEFINS. [1960] 21p. 42 refs.
Order from SLA mi$2.70, ph$4.80 60-14310

Trans. of [Justus] Liebigs Annalen [der Chemie] (West Germany) 1958, v. 618 [no. 1/3] p. 31-43.

Methods for the preparation of boron trialkyls from aluminum trialkyls are described. Boron trialkyls react with olefins at elevated temperatures. This constitutes the basis for a new method for the preparation of boron compounds with higher alkyl side chains. (Author)

Kukhtin, V. A., Abramov, V. S., and Orekhova, K. M.
REARRANGEMENT OF ESTERS OF X-HYDROXYALKYLPHOSPHONIC ACIDS INTO THE ISOMERIC PHOSPHATES. [1960] 4p.
Order from ATS $5.00 ATS-71M38R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 128, no. 6, p. 1198-1200.

Levshin, V. L., Mamedov, Kh. I. and others.
FLUORESCENCE SPECTRA OF AROMATIC HYDROCARBONS OF THE BIPHENYL SERIES AND THEIR OXYGEN- AND SULFUR-CONTAINING ANALOGS. [1960] 9p.
Order from ATS $9.00 ATS-34M39R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 9, p. 1571-1578.

Mikhaylov, B. M. and Kostroma, T. V.
ORGANO-BORON COMPOUNDS. 16. ESTERS OF ARYLALKYLAMINOBORIC ACIDS (Bororganicheskiye Soyedineniya. Soobshcheniye 16. Efiry Arilaminobornykh Kislot). Aug 58 [4]p. 2 refs.
C. T. S. no. 518.
Order from LC or SLA mi$1.80, ph$1.80 60-15590

Trans. of *Akademiya Nauk [SSSR]. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1957, no. 5, p. 646-648.

See also 60-15581

Mikhaylov, B. M., Kostroma, T. V., and Fedotov, N. S.
ORGANO-BORON COMPOUNDS. 15. ORGANO-BORON COMPOUNDS WITH ASYMMETRIC BORON ATOM (Bororganicheskiye Soyedeneniya. Soob[shcheniye] 15. Bororganicheskiy Svedeneniya s Asimmetricheskim Atomom Bora). Aug 58 [16]p. 11 refs. C. T. S. no. 506.
Order from LC or SLA mi$2.40, ph$3.30 60-15581

Trans. of *Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1957, no. 5, p. 589-597.

The reaction of organomagnesium compounds with the ester of arylchlorboric acids yields the esters of diarylboric acids. In this way it was possible to obtain, in particular, the esters of asymmetrical diarylboric acids. By the action of phosporus pentachloride on the esters of asymmetrical diarylboric acids, the asymmetrical diarylboric chlorides were) obtained for the first time. Diarylboric chlorides react with organomagnesium compounds giving triarylboron compounds. By this method were obtained for the first time triarylboron compounds with three different aryl groups. By reacting α-naphthyllithium with asymmetrical triarylborons the lithium salts of tetrarylborenic acids were obtained containing an asymmetrical boron atom. (Author)

Mikhaylov, B. M. and Shchegoleva, T. A.
ORGANO-BORON COMPOUNDS. 19. SYNTHESIS OF ALKYLDICHLOROBORANES (Bororganicheskiye Soyedineniya. Soobshcheniye 19. Sintez Alkilbordikloridov). Aug 58 [10]p. 8 refs. C. T. S. no. 521.
Order from LC or SLA mi$1.80, ph$1.80 60-15593

Trans. of *A[kademiya] N[auk] SSSR. O[tdeleniye] Kh[imicheskikh] N[auk]. Izvestiya, 1957, no. 9, p. 1080-1085.
Another translation is available from OTS $0.50 as 59-11868, TG 230-T29, 8 Jan 59, 13p.

In the reaction of two equivalents of phosphorus pentachloride on n-hexyl esters of alkylboronic acids, alkyldichloroboranes were obtained. The n-hexyl ester of ethylchloroboronous acid during distillation in a vacuum at temperature 60-70° undergoes symmetrisation with formation of ethyldichloroborane and n-hexyl ester of ethylboronic acid. (See also 60-15592)

Mikhaylov, B. M. and Vaver, V. A.
ORGANO-BORON COMPOUNDS. 17. THE INTERACTION OF AMINE COMPLEXES OF DIARYLBORIC ACID ESTERS AND AROMATIC LITHIUM COMPOUNDS; THE SYNTHESIS OF ASYMMETRIC BORTRIARYLS (Bororganicheskiye Soyedineniya. Soobshcheniye 17. O Vzaimodeystvii Aminnykh Kompleksov Efirov Diarilbornykh Kislot i Litiiaromaticheskikh Soyedinenii. Sintez Nesimmetrichnykh Bortriarilov). Aug 58 [8]p. 7 refs. C. T. S. no. 519.
Order from LC or SLA mi$1.80, ph$1.80 60-15591

Trans. of *Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1957, no. 7, p. 812-817.

Mikhaylov, B. M. and Vaver, V. A.
ORGANO-BORON COMPOUNDS. 18. NEW METHOD OF SYNTHESIS OF DIARYL BORIC ESTERS (Bororganicheskiye Soyedineniya. Soobshcheniye 18. Novyy Metod Sinteza Diarilbornykh Kislot). Aug 58 [4]p. 5 refs. C. T. S. no. 520.
Order from LC or SLA mi$1.80, ph$1.80 60-15592

Trans. of *Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1957, no. 8, p. 989-991.

See also 60-15591

Nukada, K.
CHARACTERISTIC INFRARED VIBRATIONS OF FORMALS AND ACETALS. [1960] 9p.
Order from ATS $17.75 ATS-15M38J

Trans. of [Nihon] Kagaku Zasshi (Japan) 1959, v. 80, no. 10, p. 1112-1116.

Rieche, A.
THE PEROXIDES OF ETHER, THE CARBONYL COMPOUNDS AND THE OZONIDES (Uber Peroxyde der Äther, der Carbonyl-Verbindungen und die Ozonide) tr. by D. A. Sinclair. 1959, 48p. 145 refs. Technical Trans. 832.
Order from NRCC NRCC C-3178

Trans. of Angew[andte] Chem[ie] (West Germany) 1958, v. 70, no. 9, p. 251-266.

The peroxides, which have already been under intensive study for thirty years, are constantly attracting more interest. Recently, together with many scientifically surprising reactions, a wide variety of technical processes have also been discovered in which the peroxides are involved as intermediates, activators or synthetic auxiliary agents. About 25 organic peroxides are being produced industrially, some already on a large scale. A progress report is therefore presented here on the peroxides, their formation and their derivatives. The so-called ozonides, i.e., the peroxides of carbonyl compounds, are included. (Author)

Shostak, F. T., Vittikh, M. V., and Samborskiy, I. V.
ADVANTAGES OF THE SUSPENSION POLYMERIZATION AND POLYCONDENSATION METHODS FOR OBTAINING ION EXCHANGERS AND THEIR APPARATUS DESIGN. [1960] 7p.
Order from ATS $7.95 ATS-50M38R

Trans. of *Zhur[nal] Prikiad[noy] Khim[ii] (USSR) 1959, v. 32, no. 6, p. 1238-1244.

Tucker, Harold.
IMPROVEMENT IN THE PRODUCTION OF POLYMERS AND COPOLYMERS OF CONJUGATED POLYOLEFINIC HYDROCARBONS. [1960] 33p. 3 refs.
Order from LC or SLA mi$3.00, ph$6.30 60-14255

Trans. of Belgian patent 575 671, by Goodrich-Gulf Chemicals, Inc., dated 13 Feb 59 and 13 Aug 59.

The process described is characterized in that one places one or several conjugated polyolefinic hydrocarbon monomers in contact, in an inert hydrocarbonated medium, with a catalyst prepared by causing a considerably anhydrous cobalt compound to react, this cobalt having a valence of two or three, with an organometallic compound capable of combining with said cobalt compound, said organometallic compound comprising, within its structure, at least one organic group per molecule, bound to a metal atom by a carbon atom.

Yeremin, E. N.
TESTS ON PRODUCING ACETYLENE BY ELECTRICAL CRACKING OF NATURAL METHANE IN A SCALED-UP UNIT. [1960] 13p.
Order from ATS $17.95 ATS-25M38R

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1958, no. 2, p. 73-80.

Physical Chemistry

INVESTIGATIONS OF COMBUSTION PROCESSES. Symposium on Work done in the Power-Engineering Institute imeni G. M. Krzhizhanovskiy, Acad. Sci. USSR. [1960] [3]p.
Order from LC or SLA mi$1.80, ph$1.80 60-15276

Trans. (table of contents only) of mono. Issledovaniya Protsessov Goreniya, Moscow, 1958.

KINETICS AND PROPAGATION OF FLAME. 22 Mar 60, 68p. 39 refs. JPRS: 3107.
Order from OTS $1.75 60-31105

Trans. of mono. Kinetika i Rasprostraniye Plameni, Moscow, 1959, p. 1-51.

Contents:
Calculating the overall reaction rate and flame velocity in gas mixtures, by O. A. Tsukhanova
The influence of ozone on the ignition of hydrocarbons, by S. A. Kamenetskaya, N. A. Slavinskaya, and S. Ya. Pshezhetskiy
The influence of ozone on the combustion rate of hydrocarbons, by V. M. Cherednichenko, I. N. Pospelova, and S. Ya. Pshezhetskiy

*ZHURNAL FIZICHESKOY KHIMII (USSR) 1959, VOL. 33, NO. 10, P. 2121-2388 [Journal of Physical Chemistry]. [1960] [57]p. SOV/76-33-10-(1-45)/45.
Order from LC or SLA mi$3.60, ph$9.30 60-17023-10

Consists of abstracts in English.

Bello, Jake and Riese-Bello, Helene.
CROSS-LINKAGES IN GELATIN UNDER THE INFLUENCE OF HEAT. 21 Jan 60, 8p. 19 refs.
Order from SLA mi$1.80, ph$1.80 60-14140

Trans. of Sciences et Industries Photographiques (France) 1958 [ser. 2] v. 29 [no. 10] p. 361-364.

Heating gelatin at 108°C until it is insoluble, followed by redissolution in boiling acetate buffer, is accompanied by an increase in viscosity and molecular mass (ultracentrifugation). Heating does not cause insolubilization of gelatin esterified at the carboxyl groups or acetylated at the amino groups. Addition of adipic acid to the former or of hexamethylenediamine to the latter produces insolubilization. These results are attributed to cross-linkages by formation of amide groups. (Author)

Galiba, Helene, Csanyi, L. J., and Szabo, Z. G.
CATALYTIC DECOMPOSITION OF PEROXYDISULFURIC ACID. Pt. 1 on the Catalysis of the Reactions of Peroxydisulfuric Acid. [1960] 23p. 8 refs.
Order from RIS $30.00 RIS rept. 97036

Trans. of Z[eitschrift für] Anorg[anische] Chem[ie] (East Germany) 1956, v. 287, p. 152-168.

The decomposition of the peroxydisulfate ion in solutions of varying pH was investigated by tracing the change in potential of the resulting peroxysulfuric acid, and also by means of analysis. These results were then compared with those obtained in the presence of the catalyst ions Cu, Fe, Mn, Ag. This permitted the determination of the catalytic efficacy of these ions. (Author)

Kazakov, A. V., Tikhomirova, M. M., and Plotnikova, V. I.
THE SYSTEM OF CARBONATE EQUILIBRIA (DOLOMITE, MAGNESITE). [1960].
Available on loan from DI

Trans. of [Akademiya Nauk SSSR]. Inst[itute] Geolog[icheskikh] Nauk. Trudy, 1957, no. 152. Geologicheskaya Seriya no. 64, p. 13-58.
Another translation is available from ATS $56.25 as ATS-57K26R [1958] 53p.

Kogan, P. S. and Potolovskiy, L. A.
A STUDY OF THE INFLUENCE OF STEAM ON THE PYROLYSIS OF THE TECHNICAL ETHANE FRACTION FOR ETHYLENE PRODUCTION (Izucheniye Vliyaniya Vodyanogo para na Piroliz Tekhnicheskoy Etanovoy Fraktsii s Tsel'yu Polucheniya Etilena).
Nov 59, 11p. 12 refs. RTS no. 1226.
Order from LC or SLA mi$2.40, ph$3.30 60-13012

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1958, v. 3, no. 12, p. 22-26.

Pyrolysis studies were made on ethane fractions to determine the influence of steam on: (1) the degree of ethane conversion, (2) ethylene and coke yields, and (3) the composition of the pyrolysis gases. Experiments were carried out on a flow type laboratory plant in a reaction tube of No. 2 Alloy (Fe, Cr, Al), with volume ratio steam: ethane fractions (a) of 0.05, 0.1, 0.25, and 0.5, at 900°C and a residence time of 0.053 to 0.058 seconds for raw materials and pyrolysis products in the reaction zone. Under these conditions an optimum $a = 0.1$ gave an ethane conversion of 73 to 86% and yielded 62 to 63% ethylene and 0.38% coke, based on the ethane fraction passed. Ethylene content of the pyrolysis gases was 35 to 37%. Increased dilution of the steam:ethane fraction reduced coke yields from 0.99% (without steam) to 0.09% at $a = 0.5$ of the ethane fraction passed, and reduced the ethylene yield at $a = 0.1$ to 0.5. Steam was an inert dilutent and reacted with the hydrocarbons to form CO_2 and H_2.

Korenman, I. M. and Sheyanova, F. R.
RÔLE DU pH DANS LA FORMATION ET L'EXTRACTION DES COMPLEXES INTERNES [Rol' pN pri Obrazovanii i Ekstragirovanii Vnutrikompleksnykh Soyedinenii] [Role of pH in the Formation and Extraction of Internal Complexes] tr. by Bourrely.
6 Mar 59 [24]p. 29 refs. Trans. no. R 612 (text in French).
Order from LC or SLA mi$2.70, ph$4.80 CEA-tr-R612

Trans. in French of *Zh[urnal] Obsh[chey] Khim[ii] (USSR) 1956, v. 26, p. 1849-1857.

Müller, E., Ley, K. and others.
OXYGEN RADICALS. X. ELECTRON PARAMAGNETIC RESONANCE (EPR) INVESTIGATIONS OF OXYGEN RADICALS (Uber Sauerstoff-Radikale. X. Paramagnetische Elektronenresonanz (EPR)-Untersuchungen an Sauerstoffradikalen) tr. by D. A. Sinclair. 1960, 18p. 23 refs. Technical trans. 853.
Order from NRCC NRCC C-3253

Trans. of Chem[ische] Ber[ichte] (West Germany) 1958, v. 91, p. 2682-2692.

An attempt is made to establish the mesomeric boundary states of aroxyls by the EPR method. Mesomeric forms previously in question can be demonstrated. Moreover the "mesomerism" picture can in some cases be greatly refined, whereby hitherto disregarded mesomeric states become "visible". (Author)

Rastrenenko, A. I. and Neymark, I. E.
THE POROUS STRUCTURE OF TITANO-SILICA GELS AND ALUMO-SILICA GELS AND THEIR CATALYTIC ACTIVITY (Proistaya Struktura Titanosilikageley i Alyumosilikageley i Ikh Kataliticheska a Aktivnost').
Aug 58 [8]p. 19 refs. C. T. S. no. 504.
Order from LC or SLA mi$1.80, ph$1.80 60-15579

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1957, v. 31, no. 4, p. 874-881.

A study was made of the catalytic activity of titano- and alumo-silica gels of varying porous structure with regard to the decomposition of formic acid. It was found that at 200° the specific productivity for alumo- and titnao-silica gels of varying porous structure is close. Above 200° the intensity of the diffusion transfer processes is determined by the nature of porosity of the catalysts. The most productive are the coarse-porous catalysts with a predominating pore radius of >15 A, which corresponds to the fullest use of the internal surface. It was shown that the porous structure of the catalysts is characterized by the presence of pores which are not sufficient in their dimensions to allow for the kinetics of the dehydration of formic acid at temperatures above 200°. This conclusion is in agreement with the ideas of the Knudsen diffusion, taking place in pores with effective diameter of 10^{-6} to 10^{-7}. (Author)

Royter, V. A., Stukanovskaya, N. A., and Volikovskaya, N. S.
THE ROLE OF THE OXYGEN IN VANADIUM OXIDE CATALYSTS IN OXIDATIONS (Vyyasneniye Roli Kislorada Okisnovanadiyevykh Katalizatorov v Protsessakh Okislitel'nogo Kataliza).
Mar 60 [10]p. 9 refs. RTS 1261.
Order from LC or SLA mi$1.80, ph$1.80 60-15886

Trans. of Ukrainskiy Khimicheskiy Zhurnal (USSR) 1958, v. 24, no. 1, p. 37-45.

Studies have been made of isotope exchange in a barium-aluminium-vanadium catalyst (BAV) and in V_2O_5; a discussion is given of the possible effects of the oxidation of SO_2 on the rate of this exchange. BAV exchanges oxygen with the oxides of sulphur it takes up during the oxidation. The catalytic activity of BAV is not much affected by heating the BAV to 700°C, but the exchange is entirely suppressed. The exchange between V_2O_5 and oxygen is almost unaffected by the reaction. The results show that the reduction-oxidation mechanism is improbable. The exchange kinetics of V_2O_5 have been studied; the dissociation rate of V_2O_5 and the heat of activation (37 kcal/mole) have been calculated. The ratio of the rate of exchange to the rate of oxidation is such as to indicate that the reduction-oxidation mechanism is improbable. Oxidative catalysis occurs at the surfaces without involving the oxygen present in the catalyst. (Author)

Styrikovich, M. A. and Khokhlov, L. N.
STUDY OF SOLUBILITY OF SALTS IN SUPER-CRITICAL STEAM. [1959] [8]p. 9 refs. C. E. Trans. 1153; M455.
Order from LC or SLA mi$1.80, ph$1.80 59-22523

Trans. of Teploenergetika (USSR) 1957, v. 4, no. 2, p. 3-7.

The supercritical steam solubilities of NaCl, $CaCl_2$, $CaCO_3$, $CaSO_4$ and Na_2SO_4 were determined for pressures of 180 to 300 atm and for temperatures of 380° to 700°C. Superheated steam was admitted to the reactor and passed thru the salt layer from below at 0.62 mm/sec for a contact period of 44 seconds. It then passed into the condenser where samples were obtained. The use of radioactive calcium salts facilitated the measurement of solubilities. Solubility data indicated that the chlorides and Na_2SO_4 are not deposited in the steam space of the once-through boiler when the feed water concentrations are normal for chlorides and do not exceed 0.022 ppm for Na_2SO_4. $CaCO_3$ and $CaSO_4$ are deposited in the boiler at feed water contents of 0.182 ppm and 0.02 ppm, respectively. As the $CaSO_4$ feed water content increases, its deposition zone extends to lower temperatures. A combination of two methods is recommended for salt elimination from the circulation systems of supercritical steam power plants. Addition of excess sulfate, $(NH_4)_2SO_4$, to the feed water to produce $CaSO_4$ which, because of its low steam solubility, remains in the boiler system. An intermediate heating apparatus, humidifier and separator, should be provided for salt removal from the system in the separated water.

Takamura, J. and Sasaki, Y.
STUDY OF THE OXIDATION RESISTANCE OF PHOSPHOR-ZIRCONIUM ALLOYS, PT. 1. [1960] 7p
Order from ATS $15.50 ATS-41L37J

Trans. of [Nihon] Kinzoku Gakkai-Shi (Japan) 1958, v. 22, no. 12, p. 663-668.

Tsunoda, Y. and Matsumoto, Y.
CATALYTIC ACTION OF "OXIDATION ADDITION REAGENTS" FOR THE OXIDATION OF CUMENE IN AIR. [1960] 11p.
Order from ATS $18.65 ATS-42M38J

Trans. of Kogyo Kagaku Zasshi (Japan) 1959, v. 62, no. 10, p. 1555-1559.

Varshavskiy, Ya. M. and Lozhnina, M. G.
METHODS AND TECHNIQUE OF PHYSICO CHEMICAL RESEARCH. 28 Mar 60, 9p. 7 refs. JPRS: 2394.
Order from OTS $0.50 60-11410

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1957, v. 31, no. 4, p. 911-814.

A description is given of a method for obtaining pure liquid hydrogen fluoride enriched with deuterium, and of a procedure for isotopic hydrogen exchange studies in this solvent. (Author)

Vdovenko, V. M. and Kovaleva, T. V.
THE EFFECT OF THE NATURE OF THE SALTING-OUT AGENT ON THE DISTRIBUTION OF SMALL QUANTITIES OF URANYL NITRATE BETWEEN AQUEOUS SOLUTION AND DIETHYL ETHER. 5 Apr 60, 9p. 7 refs. JPRS: 2509.
Order from OTS $0.50 60-11493

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1957, v. 2, no. 7, p. 1682-1686.

Distribution of uranyl nitrate in the aqueous solutions-diethyl ether in the presence of nitrates of lithium, sodium, potassium, ammonium, magnesium, calcium, barium, zinc, cadmium, aluminum and iron was investigated at 0, 15, and 25° temperatures. It was established that at the same concentration of a salting-out agent the distribution coefficient of uranyl nitrate decreases with increased temperature. At equal mol fractions of salting-out agents present in aqueous solutions, the salting-out action of the investigated nitrates increases with increasing charge and with decreasing cation radius. (Author)

Vdovenko, V. M., Lipovskiy, A. A., and Kuzina, M. G.
ON THE DISTRIBUTION OF NITRIC ACID AND URANYL NITRATE BETWEEN AN AQUEOUS SOLUTION AND DIBUTYL ETHER. 9 Apr 60, 8p. 13 refs. JPRS: 2514.
Order from OTS $0.50 60-11496

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1957, v. 2, no. 4, p. 975-979.

The distribution of nitric acid between aqueous solutions and dibutyl ether has been investigated. The considerable solubility of nitric acid in this ether might be explained by the formation of oxonium compounds. The distribution was investigated of uranyl trinitrate between aqueous nitric acid and dibutyl ether in relation to the concentrations of nitric acid in the aqueous phase. It was established that an increase in the concentration of nitric acid in the aqueous solution increases the concentration of the complex ion of trinitrouranyl in dibutyl ether. The decrease in the distribution factor of the uranyl at very high concentrations of nitric acid in the aqueous phase might be connected with a competition between the distributable substances. (Author)

Vdovenko, V. M., Lipovskiy, A. A., and Kuzina, M. G.
ON THE FORMATION OF A COMPLEX COMPOUND OF URANYL NITRATE. 9 Apr 60, 8p. 7 refs. JPRS: 2511.
Order from OTS $0.50 60-11494

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1957, v. 2, no. 4, p. 970-974.

The formation was investigated of a complex compound of uranyl in acetone when the nitrates of aniline or pyridine are used in the capacity of donors of the NO_3^- groups. The composition of the complex has been established spectrophotometrically, and the

constant characterizing its stability has been computed. It was demonstrated that the stability of the complex compound of uranyl trinitrate depended on the nature of the solvent and on the content of water in the organic phase. A new compound of the nitrates of pyridine and uranyl has been separated and analyzed. The composition can be presented by the empirical formula. A regular structure has been detected on the background of complete absorption in the ultraviolet part of the absorption spectrum of the complex thus formed. (Author)

Vdovenko, V. M. and Suglobova, I. G.
INVESTIGATION OF THE SYSTEM URANYL NITRATE-WATER-DIBUTYL ETHER; SOLUBILITY ISOTHERM AT 25°. 13 Apr 60, 14p. 15 refs. JPRS: 2521.
Order from OTS $0.50 60-11507

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1958, v. 3, no. 6, p. 1403-1409.

Yesin, O. A.
THE ELECTROCHEMISTRY OF MOLTEN OXIDES (A REVIEW). [1960] 19p.
Order from ATS $29.95 ATS-27M38R

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1956, v. 30, no. 1, p. 1-19.

EARTH SCIENCES

SOVIET IGY INFORMATION BULLETIN: SELECTED TRANSLATIONS FROM NO. 7. 2 Feb 60, 81p. 14 refs. JPRS: 2176-N.
Order from OTS $2.25 60-11225

Trans. of [Mezhdunarodnyy Geofizicheskiy God. Informatsionnyy Byulleten'] (USSR) 1959, no. 7, p. 3-45, 65-73, and 103-104.

Contents:
The plan of conduct of observations according to the program of the International Geophysical Year in 1959
Third Regional Conference of the representatives of countries of the European-Asiatic Region, by S. V. Solov'yev
Resolutions of the Conference of the representative of the countries of the European-Asiatic Region
The All-Union Conference on Publication of Materials of the International Geophysical Year, by B. I. Silkin
The dependency of the frequency of appearances of noctilucent clouds on the date and geographical latitude, by V. V. Sharonov
Registration of geomagnetic pulsations with a magnetograph of high sensitivity, by S. P. Bakalinskiy, B. Ye. Bryunelli, and N. F. Krotevich
Control for the transparency constant of night airglow, by L. M. Fishkova
The study of the drifts (winds) in the layer F2 by the phase method with the observance of the anisotrophy of the form and the modification of the heterogeneities, by V. D. Gusev, S. F. Mirkotan
In the Soviet Union

Chao, Chichang.
METEOROLOGY AND SEISMOLOGY IN CHINA, tr. by E. R. Hope. Dec 59 [11]p. 1 ref. T 334 R.
Order from NRCC NRCC C 3285

Trans. of Priroda (USSR) 1959 [v. 48] no. 10, p. 27-34.

Gershman, B. N.
ON DIFFUSION IN THE IONOSPHERE (O Diffuzii v Ionosfere). Sep 59 [30]p. 10 refs. F-TS-9850/V.
Order from LC or SLA mi$2.70, ph$4.80 60-15524

Trans. of Radiotekhnika i Elektronika (USSR) 1956 [v. 1] no. 6, p. 720-731.

A discussion is presented on the diffusion of charged particles in a weakly ionized gas in the presence of molecules, also taking into account the effect of the earth's magnetic field. General equations are derived which describe the diffusion and the transition to an ambipolar approximation is accomplished. The results obtained are used for evaluation of the diffusion "lifetime" of heterogeneities. (Author)

Keng, K'uan-hung, Chiang, Ai-liang and others.
SAND-CARRYING WIND, TEMPERATURE VARIATIONS, AND HYDROGRAPHY OF CERTAIN AREAS IN COMMUNIST CHINA: SAND-CARRYING WIND AND DRIFT SAND; THE GENERAL CHARACTERISTICS OF TEMPERATURE DROP IN WINTER IN SOUTHERN CHINA; PRELIMINARY ANALYSIS OF HYDROGRAPHIC CHARACTERISTICS OF INTERIOR DRAINAGE RIVERS IN KANSU. 22 Mar 60, 34p. JPRS: 3093.
Order from OTS $1.00 60-31089

Trans. of Ti-li Hsüeh-pao (Chinese People's Republic) 1959 [v. 25] no. 1, p. 38-39 and 47-89 (excerpts).

Liu, Ch'ang-ming and Shu, Li-kung.
HYDROGRAPHY AND GEOGRAPHY OF THE PEARL RIVER BASIN. 4 Apr 60, 22p. JPRS: 2448.
Order from OTS $0.75 60-11447

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958 [v. 9] no. 11, p. 488-493.

Scharbert, Heinz.
THE GABBRO OF ELSENREITH IN THE LOWER AUSTRIAN FOREST (Der Gabbro von Elsenreith im Niederosterreichischen Waldviertel). [1960] [20]p. (1 fig. omitted) 16 refs.
Order from SLA mi$2.40, ph$3.30 60-14275

Trans. of Tschermaks Mineralogische und Petrographische Mitteilungen (Austria) 1954-1956, ser. 3, v. 5 [no. 1/2] p. 37-47.

The lens-shaped gabbro bodies consist of plagioclase (core, 75% An, outer layer, 54% An), diallage formed in uralization and rhombic pryxene, amphibole-anthophyllite pseudo-morphoses after olivine, ilmenite, etc. On the basis of its chemical as well as its mineralogical identity with the gabbro from Nonndorf, a common stem magma of the gabbros can undoubtedly be assumed. The transition from the gabbro into the amphibolite can he easily followed through various and immediate stages. The plagioclases in the gabbro laboradorite to bytownite are andesine in the amphibolite. A complete crystallization of the gabbroid minerals also occurs. (Author)

Yosida, Zyungo.
QUANTITATIVE STUDY OF THE METAMORPHISM OF SNOW CRYSTALS BY SUBLIMATION. [1960]. Available on loan from BR

Trans. of Japanese mono. Yuki no Kessho no Shoka Henkei ni Tsuite no Teiryo-taki Kosatsu, n. p., n. d.

Climatology and Meteorology

COMMUNIST CHINA'S ACHIEVEMENTS IN NUMERICAL WEATHER FORECASTING. 7 Apr 60, 21p. 32 refs. JPRS: 2481.
Order from OTS $0.75 60-11469

Trans. of Ch'i-hsiang Hsüeh Pao (Chinese People's Republic) [1959] v. 30, no. 3, p. 236-242.

METEOROLOGIYA I GIDROLOGIYA (USSR) 1959, NO. 11. SELECTED ABSTRACTS [Meteorology and Hydrology]. [1960] [2]p. SOV/50-59-11-(11, 16)/17.
Order from LC or SLA mi$1.80, ph$1.80 60-17032-11

Consists of selected abstracts in English.

NORTH-12. A NEW HIGH-LATITUDE EXPEDITION (Sever-12. Novaya Vysokoshirotnaya Ekspeditsiya). [1960] [2]p. T-R-262 .
Order from LC or SLA mi$1.80, ph$1.80 60-14330

Trans. from Pravda [Moscow] (USSR) 1960, 9 Feb, no. 40(15164) p. 4.

This brief newspaper article announces that preparations are underway for the next expedition.

Belinskiy, N. A.
UTILIZATION OF CERTAIN FEATURES OF ATMOSPHERIC PROCESSES FOR LONG-RANGE FORECASTS. Oct 59 [246]p. 77 refs. F-TS-9819/V.
Order from LC or SLA mi$11.10, ph$37.80 60-15672

Trans. of mono. Ispol'zovaniye Nekotorykh Osobennostey Atmosfernykh Protsessov dlya Dolgosrochnykh Prognozov, Leningrad, 1957.

This book deals with data pertaining to cyclonic and anticyclonic activity over the area of the northern hemisphere from 1900 to 1939. A close relationship is established between circulation above the northern hemisphere and solar activity: computations of the evaporation and precipitation above the oceans of the northern hemisphere are made; an hypothesis of the causes of change in climatic conditions is constructed; and a method is developed for forecasting the drainage of certain large rivers over a long period and for forecasting water temperature in the northern part of the Atlantic Ocean for the warm period of the year. The book is intended for scientific workers and specialists in the fields of meteorology, hydrology, and oceanography. (Wright-Patterson AFB abstract)

Ch'eng, Shun-shu.
CHINA'S EXPERIMENTS IN ARTIFICIAL PRECIPITATION. 23 Mar 60, 14p. 6 refs. JPRS: 2451.
Order from OTS $0.50 60-11450

Trans. of Ch'i-hsiang Hsüeh Pao (Chinese People's Republic) [1959] v. 30, no. 3, p. 286-290.

Dubentsov, V. R.
ATMOSPHERIC FLOW IN THE STRATISPHERE. 14 Apr 60, 15p. 5 refs. JPRS: 2470.
Order from OTS $0.50 60-11517

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 11, p. 3-15.

Maps of the basic topography for 200-, 100-, 50-, 30-, 20- and 10-mb surfaces are presented for July 1957 and January 1958.

Hsieh, Kuang-tao, Hsieh, I-ping, and Yeh, Kuei-hsin.
METEOROLOGICAL EDUCATION IN THE LAST DECADE. 11 Apr 60, 11p. JPRS: 2505.
Order from OTS $0.50 60-11490

Trans. of Ch'i-hsiang Hsüeh Pao (Chinese People's Republic) 1959, v. 30, no. 3, p. 202-205.

Hsu, Erh-hao.
COMMUNIST CHINA'S RESEARCHES IN DYNAMIC METEOROLOGY IN THE PAST DECADE. 11 Apr 60, 23p. 30 refs. JPRS: 2484.
Order from OTS $0.75 60-11471

Trans. of Ch'i Hsiang Hsüeh Pao (Chinese People's Republic) [1959] v. 30, no. 3, p. 243-250.

The study is divided into three parts: Part I deals with the problem of aerodynamics; part II relates to the problem of critical layer aerodynamics (including surface layer aerodynamics); part III concerns the experience of Soviet Union's advanced meteorological sciences, etc.

Imyanitov, I. M. and Chuvayev, A. P.
THE BASIC PROCESSES LEADING TO ELECTRIFICATION IN THUNDERCLOUDS. [1960] 8p.
Order from ATS $15.40 ATS-31M38R

Trans. of Glavn[aya] Geofiz[icheskaya] Observatori[ya, Leningrad]. Trudy (USSR) 1957, no. 67(129), p. 121-128.

Imyanitov, I. M., Kulik, M. M., and Chuvayev, A. P.
AN INVESTIGATION OF THUNDERSTORM ZONES IN THE SOUTHERN REGIONS OF THE EUROPEAN USSR AND THE TRANSCAUCASUS. [1960] 27p.
Order from ATS $32.75 ATS-32M38R

Trans. of Glavn[aya] Geofiz[icheskaya] Observatori[ya, Leningrad]. Trudy (USSR) 1957, no. 67(129), p. 3-32.

Kogan-Beletskiy, G. I.
ON THE QUESTION OF THE NATURE OF BALL LIGHTNING. Oct 59 [5]p. 1 ref. AFCRC-TN-59-795; K-196.
Order from LC or SLA mi$1.80, ph$1.80 60-13009

Trans. of Priroda (USSR) 1957 [v. 46] no. 4, p. 71-73.

Ku, Chen-ch'ao.
ARTIFICIAL PRECIPITATION WORK IN COMMUNIST CHINA IN 1959. 7 Mar 60, 5p. JPRS: 3053
Order from OTS $0.50 60-31081

Trans. of K'o-Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 23, p. 789-790.

Liu, Kuang-wen.
FLOODS AND FLOOD CONTROL. 18 Feb 60, 18p. JPRS: 2268.
Order from OTS $0.50 60-11315

Trans. from Ti-li Chih-shih (Chinese People's Republic) 1958 [v. 9] Aug and Oct.

Information is surveyed on the causes of floods, methods of flood control, and the requirements of flood-control work.

Lu, Ho and Wang, Peng-fei.
DEVELOPMENT OF METEOROLOGICAL SERVICES IN CHINA IN THE PAST DECADE. 22 Mar 60, 14p. JPRS: 2452.
Order from OTS $0.50 60-11451

Trans. of Ch'i-hsiang Hsüeh Pao (Chinese People's Republic) 1959, v. 30, no. 3, p. 197-201.

This article describes the growth of New China's meteorological services since the founding of the People's Republic ten years ago. Relying upon the Party and the masses, this undertaking started from non-existence to reach prosperity, grew from small to large and from plain to complex. The development of the service has already shown conspicuous effect on the national defense and people's economy. (Author)

Geodesy

GEODEZIYA I KARTOGRAFIYA (USSR) 1959, NO. 11, P. 3-79 (Geodesy and Cartography). [1960] [19]p. SOV-6-59-11-(1-21)/21.
Order from OTS $0.60, $3.50/6 mo. PB 141 001T-22
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

INSTRUCTIONS FOR DRAWING TOPOGRAPHIC MAPS AT THE SCALES OF 1:25,000-1:100,000 AND FOR EDITING TOPOGRAPHIC MAPS AT THE SCALES OF 1:10,000-1:100,000, tr. by Claudius F. Mayer. [1960] [94]p. (5 figs. omitted) 7 refs. H 4298.
Order from OTS $2.25 60-21024

Trans. of Ukazaniya po Sostavleniyu Topograficheskikh Kart Masshtabov 1:25,000-1:100 i po Podgotovke k Izdaniyu Topograficheskikh Kart Masshtabov 1:10,000-1:100,000, Moscow, 1957, 87p.

Neklyudov, N. F.
ON A METHOD FOR DETERMINING THE EARTH'S FIGURE (Ob Odnom Metode Opredeleniya Figury Zemli). Dec 59 [13]p. 7 refs. MCL-35/V.
Order from LC or SLA mi$2.40, ph$3.30 60-15510

Trans. of [Akademiya Nauk SSSR]. Institut Teoreticheskoy Astronomii. Byulleten', 1950, v. 4, no. 8(61), p. 408-413.

Geology

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. GEOLOGIYA I RAZVEDKA (USSR) SELECTED ABSTRACTS [News of Institutes of Higher Learning. Geology and Prospecting].
Order from LC or SLA mi$1.80, ph$1.80

1958, no. 11, abstracts 12-13, 60-17034-11
1959, no. 3, abstracts 12, 60-17033-3
1959, no. 8, abstracts 2, 4, 60-17033-8

Consists of selected abstracts in English.

Arkhangelskiy, A. D., and Kopchenova, E. V.
IN REFERENCE TO DEPENDENCE OF CHEMICAL COMPOSITION OF SEDIMENTARY IRON ORES ON CONDITIONS OF THEIR FORMATION (O Zavisimosti Khimicheskogo Sostava Osadochnykh Zheleznikh rud ot Uslovii ikh Obrazovaniya). [1960]. Available on loan from DI

Trans. of Moskovskoye Obshchestvo Ispytateley Prirody. Byulleten'Otdel Geologicheskiy (USSR) 1934, v. 12[42] no. 2, p. 263-277.

Ginzburg, I. I.
PRINCIPLES OF GEOCHEMICAL PROSPECTING, tr. by V. P. Sokoloff. International Series of Monographs on Earth Sciences, v. 3. Jan 60, 304p.
Order from PP $11.50

Trans. of Russian mon. [Opyt Razvabotki Teoreticheskikh Osnov Geokhimicheskikh Metodov Poiskov Rud Tvsetnykh i Redkikh Metallov.

The book begins with a brief history of the development of the subject and a discussion of the principles on which it is based, followed by a generalized treatment of the subject of geochemical indicators. The bulk of the book is devoted to a detailed discussion of geochemical search for the various kinds of ore deposits in igneous, metamorphic, and sedimentary rocks and in surficial (residual) blankets. Examples have been chosen not only from the work of the author and his co-workers and the comprehensive 1956 symposium on geochemical prospecting in the U. S. S. R. (edited by V. I. Krasnikov and published in Moscow, 1957), but also from the literature of the rest of the world up to 1957. Two chapters are devoted to halos and other anomalies in overburden and soils, and the final chapter sums up the results obtained to date and draws some general conclusions. (Extracted from Pergamon Press advertising)

Lankin, A. A. and Rasapov, P. N.
JOINT SESSION OF USSR-RSFSR GEOLOGICAL AND MINERAL RESOURCES ORGANIZATIONS. 5 Apr 60, 6p. JPRS: 3135.
Order from OTS $0.50 60-31116

Trans. of Sovetskaya Geologiya (USSR) 1959, no. 10, p. 152-154.

Topics are noted that were discussed at the joint session held in Leningrad from 17 through 23 June 1959.

Lukavchenko, P. I.
GRAVITY MEASUREMENTS IN BORE HOLES (Ob Izmerenii Sily Tyazhesti v Burovykh Skvazhinakh). Aug 59 [26]p. 4 refs. MCL-20/V.
Order from LC or SLA mi$2.70, ph$4.80 60-15665

Trans. of Prikladnaya Geofizika (USSR) 1955 [v. 19] no. 12 p. 157-176.

The fundamental theoretical questions of gravitational logging are discussed.

Malyuga, D. P.
THE APPLICATION OF THE BIOGEOCHEMICAL METHOD IN PROSPECTING AND EXPLORATION FOR COPPER-MOLYBDENUM ORES [Primeneniye Biogeokhimicheskogo Metoda pri Poiskakh i Razvedke Medno-molibdenovykh Rud]. [1960] 4p.
Order from ATS $8.00 ATS-07M39R

Trans. of Razvedka i Okhrana Nedr (USSR) 1959, v. 25, no. 1, p. 19-22.

With reference to copper-molybdenum ore deposits in the Armenian SSR, it is shown that there is a direct correlation between the content of copper and molybdenum in ores, in the ground, and in plants.

Oceanography

CONFERENCE ON PROBLEMS CONCERNING THE NORTH ATLANTIC HERRING FISHERIES, tr. by Thomas R. Forsythe. June 59 [3]p.
Order from LC or SLA mi$1.80, ph$1.80 60-13246

Trans. of Ryb[noye] Khoz[yaystvo] (USSR) 1958, v. 34, no. 9, p. 94.

In July of this year, there was a conference of the representatives of the State Planning Committee of the USSR and RSFSR, of the Kaliningrad, Karelian, Latvian, Lithuanian, Leningrad, Murmansk and Estonian National Economy Councils on questions of improving the direction of the herring industry and the regulation of the work of scientific-commercial explorations in the North Atlantic. The conference adopted a decision to create a permanently acting Fisheries Council of the North Atlantic Expeditions of the councils which carry on herring fishing in the North Atlantic. This council has the task of coordinating the work of the fleets and organizing rational work for the fishing ships. For timely securing of herring exploration data from the herring fleets working in the North Atlantic, it was recommended that a daily contact be established between the Murmansk scientific-commercial herring exploration and the scientific-commercial exploration of BALTNIRO, and also a reciprocal linking of their work plans. In order to increase the profitability of the North Atlantic herring fishery and to guarantee the output of high-quality herring, it was decided to curtail as far as possible the catches of spawning herring in the period from April 1st through June 15, 1959, and, beginning in 1960, to stop catching spawning herring in this region during the period specified above. (Extracted from the report)

Basikalova, A. Y.
AGE AND RATE OF GROWTH OF PECTEN JESSOENSIS SAY, tr. by Paul S. Galtsoff. [1959] [16]p. (refs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-18324

Trans. of [Akademiya Nauk SSSR. Comptes Rendus (Doklady)] de l'Academie des Sciences de l'U. R. S. S., 1934, 7 Ser., Mathematics and Natural History Sciences, no. 2/3, p. 389-394. [sic]

the rate of growth in Pecten is to a great extent determined by the location of beds. Limited material available for comparison makes it possible to conclude that the rate of growth is more rapid in the specimens inhabiting the open areas with fast current and normal salinity; in closed bays with muddy bottoms, abundance of algae and lowered salinity the growth is greatly retarded. (Author)

Filatova, A. Z. and Beklemishev, K. V.
ZOOLOGICAL RESEARCH CONDUCTED DURING THE 29TH TRIP OF THE EXPEDITIONARY SHIP VITYAZ. 15 Mar 60, 9p. JPRS: 3083.
Order from OTS $0.50 60-31099

Trans. of Zoologicheskiy Zhurnal (USSR) 1959, v. 38, no. 12, p. 1907-1911.

Lebedev, A. A.
RE THE INFLUENCE OF GEOMAGNETIC DISTURBANCE ON GEOMAGNETIC ELECTRO-KINETOGRAPH CURRENT-MEASUREMENTS IN THE BARENTS SEA, tr. by E. R. Hope. Dec 59 [7]p. 1 ref. T 335 R.
Order from NRCC NRCC C-3276

Trans. of Gosudarstvennyy Okeanograficheskiy Institut. Trudy (USSR) 1957, v. 40[52] p. 50-56.

During observations on the character of the geomagnetic electrokinetograph (GEK) trace in the Barents Sea, sometimes the movement of the potentiometer over the tape exhibited a rather unusual regularity. The trace, in such cases, is reminiscent of the squares of a checkerboard. This "checkerboard-periodic" trace, recorded with the ship on course and during both relatively short (10-12 minutes) and longer intervals of time, suggested that the current-recording was being influenced by external agencies of some kind. Intense aurora was associated with a clearly expressed checkerboard trace and a decreased intensity of the aurora corresponded to a more regular trace. During the period of quiet geomagnetic field conditions the mean discrepancy between the velocity-readings of the GEK and the ordinary current-meter was 2.6 cm/sec (GEK mean velocity 12.4 cm/sec, current-meter velocity 15 cm/sec), while during the period of geomagnetic disturbance this discrepancy was to 26 cm/sec (mean velocity by GEK 43 cm/sec, by current-meter 17 cm/sec). During a period of geomagnetic disturbance the GEK, it would seem, records a summation of the potential-differences due to the sea currents plus the magnetic storm. Because in the auroral zone the maximum of geomagnetic disturbance is observed to occur at night, current measurements with the GEK should be made in the daytime. In years of maximum magnetic activity, current-measurements with the GEK will become more difficult.

Shishkova, E. V.
RECORDING AND ANALYSIS OF THE NOISE MADE BY FISH. Jan 60 [28]p. 8 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-14523

Trans. of Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii. Trudy (USSR) 1958, v. 36, p. 280-294.

The data given here imply that underwater noise produced by marine fauna may have a disturbing effect on hydroacoustical devices. Noise produced by fish can be used for determination of the species. In this connection it was of interest to study the noise produced by fish which inhabit fish industry reservoirs, and to correlate the noise with observed behavior. Piezoelectric hydrophones of Rochelle salt crystals with a broad transmission band and high sensitivity were used in the experiments.

Suharevskiy, G. M.
A THEORY OF UNDERWATER REVERBERATION DUE TO SOUND SCATTERING. [1960] [4]p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 60-14316

Reprint of [Akademiya Nauk SSSR] Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1947, v. 55, no. 9, p. 813-816.

Tarasov, N. I.
FOULING OF SHIPS AND MARITIME INSTALLATIONS ALONG THE SHORES OF THE USSR. 15 Mar 60, 6p. JPRS: 3082.
Order from OTS $0.50 60-31098

Trans. of Zoologicheskiy Zhurnal (USSR) 1959, v. 38, no. 12, p. 1886-1887.

Two tables are presented. The first lists the operational nature of the fouled objects (i.e., vessels in constant and rapid motion, water pipes, vessels moving irregularly and slowly, and vessels undergoing major repairs), the ecological properties of the fouling organisms, and recommended protection measures. The second table lists the principal macroscopic fouling organisms in the seas of the USSR.

Vetintsev, K. K.
IN REFERENCE TO THE ROLE OF SPONGES IN DYNAMICS OF SILICA IN THE WATER OF THE LAKE BAIKAL (O Roli Gubok v Dinamike Kremne Kisloty v Vode Ozera Baykal). [1960].
Available on loan from DI

Trans. of Akademiya Nauk SSSR. Doklady, 1948, v. 62, no. 5, p. 661-663.

Zhuravleva, I. T. and Rezvoy, P. D.
THE SYSTEMATICS OF FOSSIL SPONGES AND ARCHAEOCYATHIDS. [1960] 5p.
Order from ATS $8.55 ATS-97M38R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1956, v. 111, no. 2, p. 449-451.

Seismology

Ackermann, Ernst.
QUICK SOILS AND FLOW MOVEMENTS IN LANDSLIDES (Quick Erden und Fliessbewegeingen [Sic] bei Erdrutschen) tr. by D. A. Sinclair. 1959, 62p.
53 refs. Technical Trans. 839.
Order from NRCC NRCC C-3206

Trans. of Deutsche Geologische Gesellschaft. Zeitschrift (West Germany) 1948, v. 100, p. 427-466.

Monakhov, F. I., Pasechnik, I. P., and Shebalin, N. V.
SEISMIC AND MICROSEISMIC OBSERVATIONS AT THE SOVIET STATIONS DURING THE INTERNATIONAL GEOPHYSICAL YEAR, tr. by Judith I. B. Danner. Dec 59 [44]p. 16 refs. T-R-258.
Order from LC or SLA mi$3.30, ph$7.80 60-15601

Trans. of mono. Seismicheskiye i Mikroseismicheskiye Nablyudeniya na Sovetskikh Stantsiyakh v Period MGG, Moscow, 1959, 40p.

This paper is written for persons interested in the equipment and methods of seismic and microseismic observations that are carried out in the Soviet Union under the IGY program. In addition it gives the basic scientific results of microseismic studies obtained from an analysis of microseismic data. During the IGY the Soviet Union set up five Arctic and two Antarctic seismic stations for the study of those almost unknown (seismically) regions, and six tripartite microseismic stations used to determine directions to the source of microseisms. In addition, 19 seismic stations are conducting regular observations of amplitudes and periods of microseismic oscillations. All the stations are equipped with Soviet instruments. The magnification of earthquake recording instruments varies from 600 to 40,000. The equipment at the stations has a magnification of about 7000 with periods of 4-5 seconds. The analysis of microseismic observations allowed certain preliminary conclusions to be drawn, of which the following are the most important. The existing method of determining the real directions to the sources of microseisms by recording at tripartite stations proves inadequate. Observations conducted by multi-point stations with profiles of not less than the wavelength are more effective. The microseisms fade considerably when passing along the bottom of oceans and certain seas. This proves that the sources of the observed microseisms are located near the coastline. To track cyclones in some region the microseismic stations should be located not on the coast but further inland. (Author's English summary, slightly modified)

ENGINEERING

Den, Chi-siu.
SUCCESS OF THE PATRIOTIC SANITARY MOVEMENT OF 1958 (CHINA) (Uspekhi Patrioticheskogo Sanitarnogo Dvizheniya za 1958). 5 Jan 60, 12p.
Trans. V-1513.
Order from LC or SLA mi$2.40, ph$3.30 60-13491

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959, v. 30, no. 10, p. 16-20.

During 1958 great success was achieved by the "Movement for the Liquidation of the Four Evils [pests]" (rodents, flies, mosquitoes and sparrows), and also in the improvement of the sanitary-hygienic conditions of the country.

Goncharevich, I. F.
REDUCING RESISTANCE IN CURVES IN PNEUMATIC FILL INSTALLATIONS (K Voprosu o Snizhenii Soprotivlenii v Zakrugleniyakh Truboprovodiv Pnevmaticheskikh Zakladochnikh Ustanovok). [1960] [32]p. 23 refs.
Order from LC or SLA mi$3.00, ph$6.30 60-15285

Trans. of Akademiya Nauk SSSR. Institut Gornogo Dela. Trudy, 1956, v. 3, p. 98-116.

Experimental studies on the laws governing material movement along pipeline bends indicate that the specific pressure drop during pneumatic transportation along a bend, as well as during transportation along a straight pipeline, is a linear function of the average cross-sectional fill coefficient of the pipeline at the acceleration section beyond the elbow. Significant pressure drop (resistance) in bends is due to high load coefficients at the acceleration section due to particle velocity loss in the transported material on passing an elbow. Reduction of energy consumption in the Kuznets Basin by pneumatic systems which have a large number of elbows can be achieved only by reducing resistance in pipeline bends. A solution of this problem, as well as reduction of elbow wear and an increase in the constancy of transportation, can be facilitated to a considerable degree by the design proposed in this work, together with the utilization of elastic components in elbows. (Author's conclusions)

Maksimovich, G. K.
DETERMINATION OF BOTTOM HOLE PRESSURES WITHOUT THE USE OF DEPTH PRESSURE GAUGES (Opredeleniye Zaboynykh Davlenii bez Primeneniya Glubinnykh Manometrov). Aug 58 [4]p. C. T. S. no. 539.
Order from LC or SLA mi$1.80, ph$1.80 60-15599

Trans. of Neftyanoye Khozyaystvo (USSR) 1957 [v. 35] no. 9, p. 37-40.

Aeronautical Engineering

[CIVIL AVIATION]: SELECTED ARTICLES. [1960] [25]p. MCL-1/V.
Order from LC or SLA mi$2.70, ph$4.80 60-15670

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958 [v. 15] no. 11, p. 3-7, 34-35.

Contents:
Joyful results, proud outlooks, by K. Sharapov
More than the plan, by I. Grigoryev
The service of the passengers is improving, by A. Koldybayev
Big deeds of "small" aviation, by Klara Belik
The yearly quota - ahead of time, by I. Babichev
The use of training planes for training pilots, by S. Balanov
Stationary equipment for servicing aircraft, by P. Bogatyrev and E. Kukhterin
Aircraft loader An-2, by A. Voronenko

SOVIET ROCKET ENGINEERING: SELECTED TRANSLATIONS. 23 Dec 59, 134p. 63 refs. JPRS: L-1188-N.
Order from OTS $2.75 60-11080

Contents: On the theory of gas flow in the layer between the surface of a shock wave and the blunt surface of a totating body, by N. A. Slezkin; Approximation method of calculating shock waves and their interactions, by G. M. Lyakhov et al.; Deceleration of a supersonic flow in wind tunnel diffusers, by N. N. Shirokov; Shock tube for measuring drag coefficients of bodies in free flight, by Yu. A. Dunayev et al.; Information on the status of Soviet research on hypersonics, by M. S. Solomonov; Flow around a conic body during motion of a gas with high supersonic speed, by A. L. Gonor; Calculation of axisymmetric jet nozzle of least weight, by L. Ye. Sternin; Experimental investigation of self-oscillations of square plates in supersonic flow, by G. N. Mikishev; Self-oscillating systems in the presence of slowly changing external influences, by A. A. Pervozvanskiy; One approximation method of investigating self-oscillating systems in the presence of slowly changing external influences, by V. I. Sergeyev; On the motion of a slender solid body under the action of a strong shock wave, by S. S. Grigoryan; Useful interference of an airfoil and fuselage in hypersonic velocities, by G. L. Grodzovskiy; Flow around bodies by a non-ideal gas flow with high supersonic velocities, by G. A. Lyubimov; Nonlinear problems of stability of flat panels at high supersonic speeds, by V. V. Bolotin; Supersonic flow around flat quastriangular wings of small length, by P. I. Zheludev; One form of equations of supersonic gas flow, by F. S. Churikov; Estimation of the permissible irregularity of rotation of a reversible tabel for testing floated integrating gyroscopes for drift, by G. A. Slomyanskiy; All-union conference on static stability of turbomachinery, by Ye. I. Boldyrev; Coordination conference on stability of gas turbines, by Ye. I. Boldyrev.

THRUST BEARING WITH THRUST MEASURING APPARATUS, IN PARTICULAR FOR PROPELLER SHAFTS. 21 Mar 60, 3p. (illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15871

Trans. of Italian patent 468,238, Cl. Vb, by Friedrich Krupp Germaniawerft A.G., Kiel Gaarden, Germany, appl. 19 Apr 43, granted 29 Dec 51, pub. Feb 53. (Priority based on application K-164,086, filed in Germany 21 Mar 42, refused acknowledgement as not being claimed within the terms of the International Conventions)

The thrust bearing (or support) is characterized in that between the pressure ring of the shaft and the housing of the bearing, impulse elements of a measuring instrument are arranged, with wires stretched in a way allowing oscillation, whereby the natural frequency of said elements, which depends upon the state of relative stress, is employed in a known manner as the measure of the thrust force to be determined. The wires are stretched in parallel relationship to the axis of the shaft between the radially running ends of the U-shaped elastic impulse elements.

THE "TU-114" IS AMAZING (TU-114 Izumlyayet). Jan 60 [4]p. MCL-333/III.
Order from LC or SLA mi$1.80, ph$1.80 60-15476

Trans. of Pravda, Moscow (USSR) 1959, no. 188 [p. 3].

This newspaper article describes the reaction of the American public to the Soviet Turboprop aircraft while it was on display at the New York International Airport in July, 1959.

VESTNIK VOZDUSHNOGO FLOTA (USSR) 1959, VOL. 42, SELECTED ABSTRACTS [Herald of the Air Fleet].
Order from LC or SLA mi$1.80, ph$1.80

No. 3, abstracts 35, 42, 60-17031-3
No. 4, abstracts 22, 33, 42, 44, 60-17031-4

Consists of selected abstracts in English.

Pokrovskiy, G.
CONSTRUCTION IN OUTER SPACE (Stroitel'stvo v Kosmose). 21 Dec 59 [7]p. (3 figs. omitted). AF 1256387.
Order from LC or SLA mi$1.80, ph$1.80 60-13528

Trans. of Tekhnika Molodezhi (USSR) 1959 [v. 27] no. 10, p. 37-38.

Consideration is given to the construction of large satellites for use as scientific laboratories where gravity forces would be almost negligible.

Seibold, Wilhelm.
APPROXIMATE ANALYSIS OF THE DUCTED PROPELLER (Näherungsweise Berechnung des Ummantelten Propellers) tr. by D. A. Sinclair. 1960, 14p. 1 ref. Technical trans. 856.
Order from NRCC NRCC C-3281

Trans. of Z[eitschrift für] Flugwissenschaften (West Germany) 1955, v. 3, no. 5, p. 130-133.

The present analysis of the ducted propeller based on the Froude theory is a particularly simple one. Thus, the dependence of the thrust on the various propulsive unit parameters is quickly arrived at. In

particular, a simple formula for the static thrust is stated and tested against measured results. For counter-rotating propellers a static thrust increase of the order of 30% is obtained with an approximately cylindrical duct. At high forward speed this increase vanishes. (Author)

Sokolov-Sokolenok, L. and Korotkov, V.
NEW MODIFICATIONS OF SPORTS AIRCRAFT [AND] ON THE YAK-18a IN A CIRCLE. [1960] [10]p. MCL-192/III.
Order from LC or SLA mi$1.80, ph$1.80 60-15666

Trans. of two Russian monos. [Novyye Modifikatsiy Sportivnykh Samoletov] and [Na "YAK-18a" po Krugu] n. p., n. d.

Both articles are about the Yak-18 aircraft.

Chemical Engineering

INZHENERNO-FIZICHESKIY ZHURNAL (USSR) 1959 [VOL. 2] [Engineering Physics Journal].
Order from LC or SLA mi$2.70, ph$4.80

No. 2, p. 3-156, abstracts 1-23, 60-17012-2
No. 8, p. 3-125, abstracts 1-18, 60-17012-8
No. 9, p. 3-114, abstracts 1-18, 60-17012-9

Consists of abstracts in English.

KHIMICHESKAYA NAUKA I PROMYSHLENNOST' (USSR) 1959, VOL. 4, NO. 6, P. 690-696. [Chemical Science and Industry]. [1960] [69]p. SOV/63-4-6-(1-37)/37.
Order from LC or SLA mi$3.90, ph$10.80 60-17039-6

Consists of abstracts in English.

KHIMICHESKOYE MASHINOSTROYENIYE (USSR) 1959 [VOL. 1] NO. 4. SELECTED ABSTRACTS [Chemical Machine-Building]. [1960] [9]p. SOV/184-59-4-(2, 6-7, 9, 11)/18.
Order from LC or SLA mi$1.80, ph$1.80 60-17037-4

Consists of selected abstracts in English.

SOVIET RESEARCH AND DEVELOPMENTS IN THE CHEMICAL ENGINEERING UNIT OPERATION OF HEAT TRANSFER. 6 Jan 60 [140]p. 1023 refs. PAL 60-14.
Order from OTS $2.75 60-21440

The bulk of the document consists of a bibliography comprising 1,033 references (including 12 from the pre-1950 years) listed by author under the following headings: (1) heat conduction in solids, (2) thermal properties of solids and fluids, (3) heat transfer in laminar flow and free convection, (4) heat transfer in turbulent flow, (5) radiant heat transfer, (6) boiling of liquids, (7) condensation of vapors, (8) high temperature heat transfer media, (9) liquid metals, (10) development of heat pumps, (11) heat transfer in packed and fluidized beds, (12) design of steam boilers, (13) heat exchanger technology, and (14) heat transfer in heat engines and machinery. The first seven topics include documents devoted basic research, and the last seven include documents on applied research. Mathematical analysis is emphasized in both basic and applied work. Basic research on radiant heat transfer has centered largely on the analysis of the radiant interchange between a moving, absorbing (gaseous) medium and its bounding surfaces. These studies are of importance to the design of ramjet and liquid-fueled rocket combustors. In applied research the greatest effort has been on design data for the development of steam-power plant equipment, especially steam boilers. Much of the research on boiling and design of steam boilers has possible application to nuclear reactors, but this excellent heat transfer design information seems not to have been put into practice in the construction of large power stations or commercial super-critical boilers.

Fuchs, A. W.
RECENT PROGRESS IN THE CHEMICAL INVESTIGATION OF COAL. [1960].
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, Sonderausgabe p. S1-S6.

Gordiyevskiy, A. V. and Radnayeva, E. E.
AMPEROMETRIC DETERMINATION OF TOTAL SULFUR CONTENT IN COALS (Amperometrichiskoye Opredeleniye Soderzhaniya Obshchey sery v Uglyakh). [1960] [4]p. (refs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13249

Trans. of Koks i Khimiya (USSR) 1958, no. 7, p. 14-15.

A simple and quite accurate method of amperometric determination of the total sulfur content in coal is described. Economy of time in making the analysis, simplicity and precision of the final results make it possible to recommend this method for determining total sulfur content in coals. (Author)

Gorlovskiy, S. I. and Yanis, N. A.
PROCESS FOR THE FLOTATION SEPARATION OF MOLYBDENITE FROM ORES. [1960] 1p.
Order from ATS $5.00 ATS-34M38R

Trans. of Russian patent 109,161, filed 6 Aug 56 under no. 556,327.

Grosman, L. I.
APPLICATION OF A PROCESS FOR THE FLOTATIONAL SEPARATION OF MIXED CONCENTRATE. [1960] 1p.
Order from ATS $2.50 ATS-35M38R

Trans. of Russian patent 108,514 filed 23 Apr 57 under no. 571,952. Main certificate of authorship no. 107,651 of 7 May 56 in the name of same person.

Gundermann, A. E.
CONCERNING THE QUESTION OF ANALYSIS OF A BROWN-COAL-TAR-PARAFFIN-OIL WITH SELECTIVE SOLVENTS, II. [1960].
Available on loan from DI

Trans. of Erdöl und Kohle (West Germany) [1957] v. 10, p. 228-231.

Hou, Te-Pang, Cheng, Lu, and others.
CHEMICAL INDUSTRY IN COMMUNIST CHINA. 9 Mar 60, 61p. JPRS: 2331.
Order from OTS $1.75 60-11357

Trans. of Hua-hsüeh Kung-Yeh (Chinese People's Republic) 1959, no. 17, p. 8-10 and 14-16, and no. 18, p. 1-13, 18-29, 42.

Khan, G. I. and Zarakhani, A. I.
PROCESS FOR THE FLOTATION OF OXIDIZED MOLYBDENUM ORES. [1960] 1p.
Order from ATS $2.50 ATS-36M38R

Trans. of Russian patent 108,817, filed 12 June 54, under no. 5/1267/460,776.

Kheyfits, L. A., Simanovskaya, E. A., and Belov, V. N.
SOME NEW PERFUMES BASED ON TERPENOPHENOLS. [1960] 3p.
Order from ATS $5.50 ATS-65M38R

Trans. of Khim[icheskaya] Nauka i Prom[yshlennost'] (USSR) 1958, v. 3. no. 2, p. 284.

Kroger, A. C., Weitz, F. W. and others.
RECOVERY AND PROPERTIES OF BITUMINS AND HUMIC ACIDS FROM PETROGRAPHICALLY-DEFINED BROWN-COAL. [1960].
Available on loan from DI

Trans. of Braunkohle [Wärme und Energie] West Germany) 1958, v. 10, p. 193-205.

Luchin, B. G.
PRODUCTION OF A PHOSPHOLIPID CONCENTRATE AND HIGH GRADE OIL (Polucheniye Fosfatidnogo Kontsentrata i Masla Povyshennogo Kachestva). Feb 60 [6]p. RTS 1097.
Order from LC or SLA mi$1.80, ph$1.80 60-15422

Trans. of Byulleten' Tekhniko-Ekonomicheskoy Informatsii (USSR) 1958, no. 2, p. 51-52.

The layout of an installation for the preparation of high grade oil and nutritive phospholipids is given.

Mallison, A. H. and Hofmann, K. -K.
INVESTIGATION OF BITUMINOUS-TAR PITCHES BY SOLVENT ETCHING. [1960].
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 161-163.

Melik-Gaykazyan, V. I., Baychenko, A. A. and others.
THE EMULSIFICATION AND SPLIT FEEDING OF REAGENTS USED IN THE INDUSTRIAL FLOTATION OF COAL [Emul'sirovaniye i Drobnaya Podacha Reagentov, Ispol'zuyemykh pri Promyshlennoy Flotatsii Uglya]. [1960] 6p.
Order from ATS $10.95 ATS-77M38R

Trans. of Koks i Khim[iya] (USSR) 1957, no. 8, p. 14-17.

Sommer, Siegfried, Wagener, Siegfried, and Ebner, Helmut.
MODEL APPARATUS FOR THE CONTINUOUS MANUFACTURE OF POLYETHYLENE USING ZIEGLER MIXING CATALYSTS. [1960] 10p. (1 fig. omitted).
Order from SLA mi$1.80, ph$1.80 60-14349

Trans. of Kunststoffe (West Germany) 1959, v. 49 [no. 10] p. 500-502.

Stach, E.
THE GELATION (GELIFICATION) ON CONVERSION OF SOFT BROWN-COAL TO HARD BROWN-COAL. [1960].
Available on loan from DI

Trans. of Braunkohle [Wärme und Energie] (West Germany) 1958, v. 10, p. 163-165.

Steinbrecher, H. and Behling, Rolf-Dieter.
THE OILY BITUMINS OF A FAT-COAL AND A GAS-FLAME COAL. [1960].
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 146-148.

Vdovichenko, V. T., Galenko, N. P., and Sarishvili, I. G.
INVESTIGATION OF METHANE CHLORINATION IN METAL CHLORIDE MELTS. [1960] 13p. 10 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14312

Trans. of Ukrain[skiy] Khim[icheskiy] Zhur[nal] (USSR) 1957, v. 23, p. 110-116.

Investigation of the oxidative chlorination of methane in molten salts has shown that the optimum conditions for the process are: temperature 450°C, rate of gaseous flow 30 l/hr, and the ratio of oxygen to chlorine 0.68 to 0.85. The quantity of usefully bonded chlorine constitutes 60 to 64% by volume under optimal conditions of the process. The composition of the mixture of chlorine derivatives of methane is in agreement with the calculated data concerning the dependence of the fractional composition on the ratio of reacted chlorine and methane. Under the conditions of direct oxidative chlorination of methane in a $KCl-ZnCl_2-CuCl_2$ melt, about 85 to 90 mole percent of the mixture of chloride derivatives of methane consists of methyl chloride. Methylene chloride comprises 9 to 14% and chloroform 2 to 5% of the mixture; the quantity of carbon tetrachloride is insignificant. (Author)

Kolbanovskaya, A. S.
THE SELECTION OF SURFACE ACTIVE AGENTS FOR IMPROVING THE ADHESION OF BITUMEN TO MINERAL AGGREGATES (O Podbore Poverkhnostnoaktivnykh Dobavok Uluchshayushchykh Stsepleniye Bituma s Mineral'nymi Materialami). Feb 60 [6]p. 2 refs. RTS 1188.
Order from LC or SLA mi$1.80, ph$1.80 60-15660

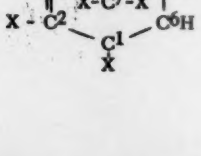
Trans. of Avtomobil'nyye Dorogi (USSR) 1958, v. 21, no. 7, p. 14-15.

Because of the great interest that road constructors have shown in the use of surface active agents and, in view of the great amount of research on new compounds for these additives, an account is given of the fundamental physico-chemical phenomena accompanying the adhesion of bitumen or tar to the surface of mineral aggregates. (Author)

Vollmert, B., Fust, K. J., and Willersinn, H.
PROCESS FOR THE PRODUCTION OF DIFFICULTLY-INFLAMMABLE AND SOLVENT-RESISTANT POLYMERS. [1960] 5p.
Order from LC or SLA mi$1.80, ph$1.80 60-14208

Trans. of German patent 1 066 743, by Badische Anilin- und Soda Fabrik AG., 8 Oct 59.

A process for the production of difficultly-inflammable and solvent-resistant polymers is claimed, characterized by the co-polymerization of acrylate and/or methacrylate esters of an alcohol having the 1, 2, 3, 4, 7, 7-hexahalobicyclo-[2. 2. 1]-2-heptenyl group



in which X can signify chlorine or bromine, and/or fumarate esters of the described alcohol, with other unsaturated polymerizable compounds.

Ziegler, Karl.
PROCESS FOR PRODUCING TETRAALKYL LEAD. [1960] 9p.
Order from RIS $25.00 RIS rept. 97071

Trans. of Belgian patent 575641, filed 11 Feb 59, priority: Germany, 14 Feb 58.

The subject of this invention is a process for separating tetraalkyl lead and the alkyl aluminums formed at the anode during electrolysis of a complex compound of the general formula $Me(Al(R')_4)$ in which Me signifies sodium or potassium and R' a straight chained alkyl group having 2-6 carbon atoms, the said process consisting fundamentally of treating this mixture with complex compounds of the general formula $Me(Al(R')_3OR)$, in which Me and R' have the same meanings as above and R is an alkyl group having 2-8, and preferably 4, carbon atoms or is possibly a substituted phenyl, and then separating the conversion products thus obtained.

BETON I ZHELEZOBETON (USSR) 1959, NO. 4, P. 145-192 (Concrete and Reinforced Concrete). [1960] [18]p. SOV-97-59-4-(1-13)/13.
Order from OTS $0.50, $3.00/6 mo. PB 141 090T-16
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

Civil Engineering

SOVIET CONSTRUCTION AND BUILDING MATERIALS INDUSTRY: SELECTED TRANSLATIONS NO. 9. 15 Mar 60, 23p. JPRS: 2334.
Order from OTS $0.75. 60-11359

Contents:
Potential for reducing cement consumption by precast reinforced concrete elements enterprises, tr. by A. Berezin and V. Pokrovskiy. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 10, p. 41-47.
Ways to develop the construction industry in rural areas, by G. Prozorovskiy. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 11, p. 7-11.
Local cementing materials in construction, by A. Shchepetov. Trans. of Stroitel' (USSR) 1959 [v. 5] no. 10, p. 14.
Concentrate all effort on fulfillment of the great tasks of Communist construction, Trans. of Steklo i Keramika (USSR) 1959 [v. 16] no. 11, p. 1-2.
Great strides in the construction industry. Trans. of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 4 Nov, p. 2.
Decisive stage in the integrated electrification of the USSR, by P. Neporozhniy. Trans. of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 25 Nov, p. 3.
(See also 59-13852)

Lammlein, A.
COMPETITION FOR THE DESIGN OF A VIADUCT AS AN OVERHEAD ROADWAY. [1960].
Available on loan from BR

Trans. of Beton und Stahlbetonbau (Germany) 1958, v. 53, no. 3, p. 49-56.

Lyubimov, B.
BERING STRAIT DAM. 18 Mar 60, 8p. JPRS: 2390.
Order from OTS $0.50 60-11407

Trans. of Literaturnaya Gazeta (USSR) 1959, no. 131(4907), p. 1-2.

The proposed dam would alter the climate of the Arctic regions and transform vast areas of eternal frost (in the U. S. A., the U. S. S. R., and Canada) into fertile grain fields. The discussion is in a popular vein (nontechnical).

Electrical and Electronic Engineering

AKADEMIYA NAUK SSSR. OTDELENIYE TEKHNICHESKIKH NAUK. IZVESTIYA: ENERGETIKA I AVTOMATIKA, 1959, NO. 2, P. 3-152 (News of the Academy of Sciences of the USSR. Department of Technical Sciences, Power Engineering and Automation). [1960] 1v. SOV-24-59-2-(1-30)/30.
Order from OTS $1.00, $5.50/6 mo. PB 141 019T-16
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

DRYING INSTALLATION WITH HEAT RECOVERY. [1960] 7p. (illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-14309

Trans. of Swiss patent 229249, Cl. 88, by Maschinenfabrik Oerlikon, Zurich-Oerlikon, appl. filed 16 Nov 42, registered 15 Oct 43, pub. 14 Jan 44.

The installation is distinguished by the fact that the heat carrier of the installation, after increasing its moisture content, is divided into at least two parts, one part of which flows through a heat pump and exchanges heat with another part.

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. ENERGETIKA (USSR) SELECTED ABSTRACTS [News of Institutes of Higher Learning. Power].
Order from LC or SLA mi$1.80, ph$1.80

1958, vol. 1, no. 12, abstracts 4-5, 60-17035-12
1959, vol. 2, no. 6, abstracts 7, 9-12, 21, 60-17036-6

Consists of selected abstracts in English.

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. RADIOTEKHNIKA (USSR) 1959, VOL. 2 [News of Institutes of Higher Learning. Radio Engineering].
Order from LC or SLA mi$3.30, ph$7.80

No. 2, p. 131-264, abstracts 1-25, 60-17014-2
No. 4, p. 391-508, abstracts 1-26, 60-17014-4

Consists of abstracts in English.

RADIO ENGINEERING AND ELECTRONICS, 1959, VOL. 4, NO. 1. Mar 60, 256p.
Order from PP $60.00($22.50/year to individuals)

Trans. of Radiotekhnika i Elektronika (USSR) 1959, v. 4, no. 1, p. 3-149.

RADIO [MOSCOW] (USSR) 1959, NO. 5, P. 1-64 [Radio]. [1960] [33]p. SOV/107-59-5-(1-51)/51.
Order from LC or SLA mi$3.00, ph$6.30 60-17016-5

Consists of abstracts in English.

*RADIOTEKHNIKA (USSR) 1959, V. 14, NO. 10, P. 3-80 (Radio Engineering) [1960] 1v. SOV-108-14-10-(1-14)/14.
Order from OTS $0.50, $3.00/6 mo. PB 141 105T-17
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

REFERATIVNYY ZHURNAL. ELEKTROTEKHNIKA (USSR) 1959, NO. 18, ABSTRACTS 37938-39748 [Journal of Abstracts. Electrical Engineering]. [1960] [15]p. SOV/112-59-18-(37938-39748).
Order from LC or SLA mi$2.40, ph$3.30 60-17038-7

Consists of abstracts in English.

TELECOMMUNICATIONS, 1959 [VOL. 13] NO. 1, Mar 60, 109p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1959 [v. 13] no. 1, p. 3-80.

TELECOMMUNICATIONS, 1959 [VOL. 13] NO. 5, P. 455-568, Mar 60, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1959 [v. 13] no. 5, p. 3-80.

Bouvier, G.
CHECKING ON THE INSULATION OF MARINE ELECTRICAL EQUIPMENT (Le Controle de l'Isolement des Installations Électriques de Bord) tr. by F. A. Raven. Oct 58 [27]p. STS-288; Bureau of Ships Translation 659.
Order from LC or SLA mi$2.70, ph$4.80 59-16030

Trans. of Association Technique Maritime et Aéronautique, 1958 Session, Paris, p. 1-17.

The methods used for such a surveillance and the advantages which may accrue therefrom are surveyed following the general rules for a rational installation of such a marine electrical system.

Drozdovich, V. M.
SELECTION OF A COMPENSATING NETWORK TRANSFER FUNCTION OF A STABILIZATION SYSTEM. 5 Apr 60, 7p. 3 refs. JPRS: 2420.
Order from OTS $0.50 60-11426

Trans. of Izvestiya Vysshiky Uchebnykh Zavedniy. Priborstroyeniye (USSR) 1958, no. 6, p. 33-37.

The question of the choice of the number of differentiating links necessary in order to make it feasible to obtain any prescribed transient is investigated. It is proved that by choosing ideal differentiating and intergrating links it is possible to realize a synthesis of the desired correcting network with a non-uniformity coefficient equal to zero.

Druzhinin, G. V.
CONDENSER STANDBYS. [1960] 7p. 5 refs.
Order from MDF $4.00 MDF D-133

Trans. of *Radiotekh[nika] i Elektr[onika] (USSR) 1959, v. 4, no. 3, p. 463-467.

A method is considered for increasing the reliability of condensers by using the minimum standby (excess) capacity. (Author)

Gerdov, M. M.
CALCULATION OF THE RANGE OF A PULSE RADAR STATION THROUGH ITS PARAMETERS AND THE SPECIFIED PROBABILITY OF DETECTION OF A TARGET [Raschet Dal'nosti Deystviya Impul'snoy Radiolokatsionnoy Stantsii po yeye Parametram i Zadannoy Veroyatnosti Obnaruzheniya Tseli]. 31 Mar 59, 9p. 14 refs. Trans. 040; WAW Memo. 22-59.
Order from LC or SLA mi$1.80, ph$1.80 60-14344

Trans. of *Radiotekhnika (USSR) 1958, v. 13, no. 7 [p. 55-62].

Formulas are derived which make it possible to calculate the effective range of a pulse-radio-direction-finder station (RDS). These formulae connect the effective range with the RDS parameters and the given probability of detecting the target. The formulae are derived in consideration of the influence exercised by the internal noise of the RDS receiver and of the fluctuations of the reflected signal caused by the moving of the target. The occurrence of the intelligence signal and of interference at the output of the receiver are considered as joint occurrences. (Author)

Goloub, N. V.
IRON AND COPPER IMPURITIES IN CONDENSER PAPER. [1960] 8p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14373

Trans. of A. T. I. P. Trans. no. T 3582 from Bumash[naya] Prom[yshlennost'] (USSR) 1957, v. 32, no. 8.

Results from tests indicated that the accumulation of iron and copper in pulp is influenced by (1) deposit of iron hydroxide by water, coagulation, and aggregation of flakes which causes the formation of large nonconducting particles; (2) wear of steel blades, the fibers picking up the metal particles; and (3) corrosion of copper surfaces. The eventual removal and take up of very small particles caused by the pulp rubbing against the surface of machinery are also a source of iron and copper accumulation in pulp. This type of processes represents a special type of corrosion and can be classified as an erosion mechanism.

Grebenshchikov, V. N.
ALGEBRAIC METHOD OF ANALYZING MULTI-TERMINAL CONTACT-RECTIFIER NETWORKS. [1959] 11p. 3 refs.
Order from MDF $5.50 MDF G-170

Trans. of Moscow U. Vestnik. Ser[iya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 2, p. 69-78.

For abstract see 60-15856 below.

Grebenshchikov, V. N.
ALGEBRAIC METHOD OF ANALYZING MULTI-TERMINAL CONTACT-RECTIFIER NETWORKS. Feb 60 [13]p. 3 refs. AFCRC-TN-60-159; G-170.
Order from LC or SLA mi$2.40, ph$3.30 60-15856

Trans. of Moscow U. Vestnik. Ser[iya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 2, p. 69-78.
Also available from MDF $5.50 as MDF G-170 [1959] 11p.

An algebraic method of analyzing multi-terminal contact circuits with blocking elements is proposed herein. In contrast to known matrix methods of analysis (e.g., B. I. Aranovich, The use of matrix methods in problems of the structural analysis of relay-contact networks, Avtomatika i Telemekhanika 10: 437-451, 1949. A translation is available from LC or SLA as 59-18649), recursion formulas of Boolean algebra are used in the method proposed, which describe the relation between sub-circuits of the prescribed circuit which differ by a terminal, contact or rectifier. In comparison with the trivial method of analysis which

consists of sorting all loops with leads at the prescribed terminals, the method proposed is significantly less tedious in analyzing complex circuits. The method is somewhat simplified in the case of analyzing contact circuits without rectifiers. (Author)

Gutkin, L. S. and Chentsova, O. S.
TRANSIENT PROCESSES IN A HIGH-FREQUENCY DETECTOR-AMPLIFIER SYSTEM. 21 Oct 58 [17]p. 5 refs. Trans. 025.
Order from LC or SLA mi$2.40, ph$3.30 60-14345

Trans. of *Radiotekhnika (USSR) 1957 [v. 12, no. 11] p. 50-61.

Transient processes are considered in a system comprising a high-frequency amplifier and a diode detector for a few types of circuits (tuned resonant circuit, detuned resonant circuit, two coupled circuits). The analysis is conducted by a method of low-frequency equivalents permitting us to take into account the effect of transient processes in a system of circuits feeding a detector, for different laws of alteration of the input signal (Author)

Ivanov, D. A.
FOR A WIDER AUTOMATION OF RURAL COMMUNICATION FACILITIES (Shire Automatiziorovat Srebspva Svyazi na Syele) tr. by E. C. B. P. [1960] [7]p. (2 photos. omitted). H 4952 B.
Order from OTS $0.50 60-21435

Trans. of [Vestnik Svyazi] (USSR) 1958 [v. 18, no. 12] p. 13-14.

Kiyashko, A. V.
MOBILE TELEVISION STATION PTS-3 (Peredvizhnaya Perlevizionnaya Stantsiya PTS-3) tr. by E. C. B. P. [1960] [7]p. (2 photos. omitted) H 4952 A.
Order from OTS $0.50 60-21434

Trans. of [Vestnik Svyazi] (USSR) 1958 [v. 18, no. 12] p. 10-11.

Krize, S. N.
ON THE CALCULATION OF A PULSE LIMITER. [1960] [6]p. 3 refs. Trans. 030.
Order from LC or SLA mi$1.80, ph$1.80 60-14343

Trans. from *Radiotekhnika (USSR) 1957, v. 12, no. 3.

The work of pulse limiting of video signals is analyzed. The calculation of the nonlinear volt-ampere characteristic of the limiting element and of course (calculation of the) rise time of the affecting pulse are particulars of the measurement. (Author)

Kuhrt, F., Stark, G., and Wolf, F.
REPRODUCTION OF MAGNETIC SOUND RECORDINGS WITH THE AID OF THE HALL EFFECT. Jan 60, 10p. 8 refs.
Order from SLA mi$1.80, ph$1.80 60-14501

Trans. of Elektronische Rundschau (Germany) 1959, v. 13, no. 11, p. 407-408.

A reproduction head with a Hall generator is discussed in comparison with the inductive reproductive head.

Landauer, Gunhild and Veith, Werner.
THE INVESTIGATION AND EVALUATION OF OXIDE CATHODES WITH THE AID OF TEST TUBES. Feb 60, 34p. 14 refs.
Order from SLA mi$3.00, ph$6.30 60-14483

Trans. of Archiv der Elektrischen Übertrangung (West Germany) 1959, v. 13, no. 5, p. 211-218.

For studying the electrical properties of oxide cathodes a test electron tube was developed on which the interface resistance and the coating resistance can be measured under normal operating conditions. The potential drop developing in the oxide compound can be determined from the final velocity of the emitted electrons with the aid of a retarding field where the electrons are retarded after passing a slot in the anode. This arrangement allows also an investigation of the time behavior of the electrical parameters of the oxide cathode as a function of temperature and load. Curves of the useful life have been so obtained for a number of active and passive nickel grades. Finally the paper deals with the difference between temperature and current activation. (Author)

Lietti, Alfredo.
THE TECHNICAL EQUIPMENT OF THE ELECTRONIC MUSIC STUDIO OF RADIO MILAN (Gli Impianti Tecnici dello Studio di Fonologia Musicale di Radio Milano) tr. by D. A. Sinclair. 1960 [15]p. 5 refs. Technical trans. 859.
Order from NRCC NRCC C-3278

Trans. of Elettronica (Italy) 1956, v. 5, no. 3, p. 116-121.

After a general description of the equipment a few apparatuses of special design are examined, including the panel of oscillators for synthesizing notes, the variable filter with 2 cps band width and the apparatus for varying the length of a recording without altering the frequency of the sounds recorded. (Author)

Popov, V. S.
MEASUREMENT OF POWER BY THE METHOD OF EQUAL TEMPERATURES (Izmereniye Moshchnosti Sposobom Ravnykh Temperatur). Mar 60 [10]p. 4 refs. RTS 1266.
Order from LC or SLA mi$1.80, ph$1.80 60-15731

Trans. of *Elektrichestvo (USSR) 1958, no. 9, p. 63-66.

The method described is based upon the direct measurement of the difference in the powers produced in the heaters of "heat transformers" (thermal converter) or "heated resistances" (a combination of a resistance and a resistance thermometer) and in which

the characteristics of each pair of "heat transformers" or "heated resistances" must be similar, although the pattern of their characteristics may be entirely arbitrary.

Roizin, N. M.
INVESTIGATION OF CERTAIN PHENOMENA IN THE OPERATION OF TRANSISTORS IN PULSE CIRCUITS. [1959] 20p. 1 ref.
Order from MDF $10.00 MDF R-119

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy] Radiotekhnika (USSR) 1959 [v. 2] no. 4, p. 462-476.

The spontaneous onset of a pulse of collector current in a cut-off triode is investigated as is the failure of triggers to operate at low trigger frequencies during saturation. The 'spontaneous conduction' phenomenon was shown to be related to the presence of fringe regions of the base, in which a significant quantity of carriers is accumulated. The discharge of these electrons and holes from the base region can be accomplished only within a time on the order of magnitude of the lifetime. The medium abutting the triode surface, which specifies the rate of surface recombination influences the magnitude of the charge of the carriers being accumulated in the fringe areas of the base. The rate of surface recombination increases especially after heating in a vacuum and drops in a humid atmosphere. As the temperature increases the carrier recombination decreases and their accumulation increases. A reduction in the temperature leads to an increase in the recombination and, therefore, to a decrease in the accumulation. The specific resistivity of the original germanium exerts a substantial effect on the magnitude of the additional pulses. Triodes of the same geometry and similar values of the volume lifetime (the diffusion length fluctuates between 0.3 and 0.5 mm) differ sharply in the magnitude of the additional pulse because the rate of surface recombination varies sharply as the specific resistivity of the base material diminishes. The regularities detected in the properties of the surface were found to explain the "smothering" pulse phenomenon, the frequency dependence of breakdown voltages, the hysteresis of the volt-ampere characteristics, and the difference in the breakdown in common-emitter and common-base circuits.

Samoylenko, V. I. and Glotov, I. A.
TRIGGER DEVICES EMPLOYING THE CAPACITANCE OF A p-n JUNCTION (Triggernyye Ustroystva c Ispol'-zovaniyem Yemkosti p-n Perekhoda) tr. by S. E. [1960] 16p. (3 figs. omitted) 5 refs. H-4527.
Order from OTS $0.50 60-21003

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Radiotekhnika (USSR) 1959 [v. 2] no. 1, p. 38-47.

Trigger operation in a nonlinear LC circuit employing the capacitance of a p-n junction as a controlled reactance is considered. The basic relationships for selecting circuit parameters are given. The possibility of creating a parametric trigger circuit employing the capacitance of a p-n junction is confirmed experimentally. (Author)

Warnecke, R.
ON A FEW TYPICAL MODELS OF VELOCITY-MODULATED TUBES (Sur Quelques Modèles Typiques de Tubes à Modulation de Vitesse). [1960] [102]p. (foreign text included) 38 refs.
Order from SLA mi$5.70, ph$16.80 60-14339

Trans. of Annales de Radioélectricité (France) 1948, v. 3, no. 12, p. 71-106.

The author discusses a few typical models of velocity-modulated tubes that were recently studied, or are in course of development, in the laboratories under his direction. These included (1) reflex Klystrons for the 3-, 10-, and 20-cm bands for use as low-power oscillators in receiving or transmitting systems; (2) a frequency-multiplying Klystron by means of which it is expected to transpose, in the 10-cm band, the frequency stability obtained from a piezo-electric quartz crystal; and (3) a two-cavity Klystron which, in the 10-cm band, supplies very large high frequency power of an unusual order of magnitude: more than 1 kw under continuous operating conditions.

Mechanical Engineering

Goecke, E.
WEAR AND TEAR OF PIPES ON THE FURNACE OF HORIZONTAL CYCLONES. (Feuerungsseitige Rohrabzehrungen an Horinzontal-Zyklonen). [1959] 11p. (7 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-18546

Trans. of Vereinigung der Grosskesselbesitzer. Mitteilungen (West Germany) 1957, no. 51, p. 417-421.

Before reporting about the wear and tear of pipes, erosions, on the flue gas side of the two cyclones of boiler 4 in Ibbenbüren, a description must be given of the development of the boiler from the start of its operation up to today. We should precede these reflections with the statement that all experiences and observations were gained with a very lean fuel of high inerts content and a low-melting point of the ash. (Author)

Ogston, Walter MacTavish.
IMPROVEMENTS IN THE PROCESSES AND APPARATUS FOR THE DRYING OF MATERIALS OR FOR SIMILAR EVAPORATIONS [1960] 6p.
Order from LC or SLA mi$1.80, ph$1.80 60-14307

Trans. of French patent 987,173, Gr. 15, Cl. 4, by Power Jets (Research and Development) Ltd., residing in Gt. Brit., requested 20 May 49, delivered 11 Apr 51, pub. 9 Aug 51 (two patent applications filed in Gt. Brit. 28 May 48 and 11 May 49).

A number of improvements are suggested in the processes and apparatus for the evaporation of the evaporable content of materials, in particular of solid materials to which circulation by convection cannot be applied in a satisfactory manner. These improvements, used separately or in combination, include: (1) heating the materials to vaporize the evaporable content, raising the temperature and boiling point of the vapor by compression, and using the heat coming from the condensation to heat the materials in order to evaporate them further; (2) using a part of the vapor coming from the heating of the materials to be treated as the condensing fluid, this part being then superheated and finally used to further heat the said materials; and (3) using the appreciable heat of the condensate to heat the materials to be treated.

Ordnance, Missiles, and Satellite Vehicles

ARTIFICIAL EARTH SATELLITES AND RELATED SUBJECTS: ABSTRACTS OF SELECTED ARTICLES. Apr 60, 11p. Technical trans. F-8.
Order from OTS $0.50 60-21430

Abstract trans. of 13 selected articles from Iskusstvennyye Sputniki Zemli (USSR) 1959, no. 3.

Dobovitskiy, F. I. and Manelis, G. B.
THERMAL DECOMPOSITION OF EXPLOSIVES BELOW THE MELTING POINT [Termicheskoye Razlozheniye Vzryvchatykh Veshchestv Nizhe Temperatury Plavleniya]. 8 Apr 60, 6p. 4 refs. JPRS: 2487.
Order from OTS $0.50 60-11475

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 126, no. 4 [p. 813-816].

It is assumed that the original explosive dissolves in the reaction products and that thermodynamic equilibrium between the solid and liquid phases is successfully established. The ratio of concentration of the original substance C_{B_L} to the products of the reaction C_{A_L} in the liquid phase $a = C_{B_L}/C_{A_L} = B_L/A_L$ is a constant value at a constant temperature and is not dependent on the degree of transformation up to the disappearance of the solid phase. Calculations show that the maximum reaction rate can lie at the point of complete solution of the original substance or later as the reaction proceeds, even in absence of the solid phase. The decomposition rate is directly proportional to the degree of transformation up to the moment of complete solution, after which it falls according to a first order law, but the initial rate is directly proportional to the quantity of impurities or admixtures and the solubility of the original explosive in it. At the point of complete solution of the original substance in the reaction products the solid phase disappears and the law for the reaction process changes. The degree of transformation, at which the complete solution takes place, is decreased by increasing the temperature according to

$$\eta = \frac{1 - N}{1 - \mu N} = \frac{1 - \exp\left(-\frac{\lambda(T_F - T)}{RT_F T}\right)}{1 - \mu \exp\left(-\frac{\lambda(T_F - T)}{RT_F T}\right)},$$

where N is the mole fraction of the dissolved substance, λ is heat of fusion, T_F is melting point temperature, T is experimental temperature, and μ is the change in volume at complete decomposition.

Grigorash, I. and Bidevkin, A.
RE-EQUIPPED PRIME MOVER (Pereoborudovannyy Tyagach) tr. by Elena Wolkonsky. [1960] [4]p. (4 illus. omitted). H-5011.
Order from OTS $0.50 60-21219

Trans. from Tankist (USSR) 1958, no. 1.

To improve the prime mover T-34-T, a radio set, a rigging assembly for retrieving of stalled tanks, a loading platform, a jib-crane and a set of auxiliary devices were added for the accomplishment of repairs.

Matveyev, S.
SPACE LABORATORIES. 16 Mar 60, 16p. 3 refs. JPRS: 3080.
Order from OTS $0.50 60-31097

Trans. of Radio [Moscow] 1959, no. 11, p. 8-11.

Some of the findings of the Soviet satellites are summarized in nontechnical language.

Reydel', S.
"POLARIS" BALLYHOO (Shumikha Vokrug "Polyarisa"). 13 Nov 59 [5]p. AF 1256291.
Order from LC or SLA mi$1.80, ph$1.80 60-13194

Trans. of Sovetskiy Flot (USSR) 1959, 5 Sep. p. 4.

Yamada, M. and Yonezawa, J.
STUDIES ON THE MECHANISM OF COMBUSTION OF DELAY ELEMENTS, I. [1960] 6p.
Order from ATS $9.95 ATS-69M38J

Trans. of Kogyo Kayaku Kyokaishi (Japan) 1958, v. 19, no. 2, p. 118-121.

Yurkevich, M.
ROCKET MISSILES OF U. S. CARRIER-BASED AIRCRAFT (BASED ON FOREIGN PRESS) (Reaktivnoye Oruzhiye Avianosnoy Aviatsii S Sh A). 15 Jan 60 [4]p. AF 1419382.
Order from LC or SLA mi$1.80, ph$1.80 60-13531

Trans. of Sovetskiy Flot (USSR) 1959, 25 Dec, p. 3.

Brief descriptions in nontechnical language are presented on the following missiles: Sidewinder, Diamondback, Sparrow III, Genie MR-1 and MR-2, Bullpup and Bulldog, White Lance, and Corvus.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Food

Piskarev, A., Krylov, G., and Luk'yanitsa, L.
THE HISTOLOGICAL CHANGES IN FISH TISSUE ON FREEZING (Kharakteristika Gistologicheskikh Izmenii Ryby pri Zamorozhivanii). Feb 60 [11]p. 5 refs. RTS 1269.
Order from LC or SLA mi$2.40, ph$3.30 60-15426

Trans. of Kholodil'naya Tekhnika (USSR) 1958 [v. 35] no. 4, p. 48-52.
Another translation is available from LC or SLA mi$2.40, ph$3.30 as 59-19598, CSIRO trans. 4256 [1959] [18]p.

Yuditskaya, A. I.
HISTOLOGICAL AND HISTOCHEMICAL STUDY OF SMOKE-CURED FISH TISSUE (Gistologicheskoye i Gistokhimicheskoye Issledovaniye Tkaniye Kopchenoy Ryby). Mar 60 [8]p. 2 refs. RTS 1309.
Order from LC or SLA mi$1.80, ph$1.80 60-15881

Trans. of Rybnoye Khozyaystvo (USSR) 1959 [v. 35] no. 2, p. 65-69.

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

REFERATIVNYY ZHURNAL. MASHINOSTROYENIYE (USSR) 1959 [Journal of Abstracts. Machine Construction].
Order from LC or SLA mi$4.50, ph$12.30

No. 15, abstracts 58875-60141, 60-17028-15
No. 16, abstracts 63582-68072, 60-17028-16

Consists of abstracts in English.

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 21, 26 APR 60]. [1960] 99 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-17165

Trans. of unevaluated information selected from Russian-language periodicals.

See also 60-13543, 60-15449

Vasil'yev, A. A.
MACHINES FOR THE COMPLETION OF COMPLEX MECHANIZATION OF ROAD CONSTRUCTION [PT. 1] tr. by E. C. B. P. [1960] [9]p. (6 refs. omitted). H 4936.
Order from OTS $0.50 60-21212

Trans. of [Avtomobil'nyye Dorogi (USSR) 1959, v. 22, no. 3, p. 10-12].
Another translation is included in 59-13865, JPRS(NY)-1882, available from OTS $1.25, 21 Sep 59, 42p.

The machinery (available and proposed) for the road-building program of the 1959 to 1965 seven-year plan is discussed.

Engines and Propulsion Systems

Kalishevskiy, L. L., Karsel'son, B. D. and others.
CYCLONE COMBUSTION CHAMBERS. [1960] [4]p.
Order from LC or SLA mi$1.80, ph$1.80 60-15277

Trans. (table of contents only) of mono. Tsiklonnyye Topki, Moscow/Leningrad, 1958.

Nechleba, Miroslav.
HYDRAULIC TURBINES; THEIR DESIGN AND EQUIPMENT. [1960].
Available on loan from BR

Trans. of unidentified Czech. mono., Prague, ARTIA, 1957, 636p.

Sheynin, B. L. and Volkova, V. L.
INVESTIGATION OF THE EFFECT OF THE VELOCITY OF A STEAM-WATER MIXTURE IN A HEADER ON ITS DISTRIBUTION OVER PARALLEL TUBES. Aug 58 [6]p. 1 ref. C. T. S. no. 501.
Order from LC or SLA mi$1.80, ph$1.80 60-15577

Trans. of Teploenergetika (USSR) 1957 [v. 4] no. 9, p. 37-40.

An analysis is given of the effect of the velocity of steam-water mixture on the uniformity of its distribution over the tubes. The results are given of an experiment on a semi-production scale unit. (Author)

Stavisskiy, Yu. Ya., Bondarenko, I. I. and others.
AN EXPERIMENT IN PRODUCING REACTION THRUST IN A LABORATORY MODEL ON AN ION ENGINE. Jan 60 [10]p. 5 refs. MCL-426/V.
Order from LC or SLA mi$1.80, ph$1.80 60-15475

Trans. of *[Zhurnal Tekhnicheskoy Fiziki (USSR) 1959, v. 29, no. 8, p. 962-966].
Another translation is available from LC or SLA as 59-22146, AF 1 256174, 9 Oct 59 [5]p.

An experimental investigation of a simplified model of an ion engine, using surface ionization phenomenon of cesium on tungsten, was conducted. The surface ionization of cesium took place on a tungsten plate having an area of 70 sq cm and heated to 900°C by a tungsten emitter. The emitter's potential in respect to the ground was +3 kv. The grids were placed 10 to 15 mm apart above the emitter's surface. The outside grid was used for the emission of electrons, compensating the ions' flux. The grid was made of tantalum wire 0.2 mm in diameter heated to 1,700°C This grid had a zero potential. An additional grid which had a potential of -0.5 kv, was used to prevent the reverse current flow. This grid was made of tungsten wire 0.3 mm in diameter heated by electric current to a temperature which excluded the adhesion of cesium and therefore provided for a minimum emission of electrons from the grid. Metallic cesium was evaporated in a special heater at 200°C. The atomic cesium beam was then let out through an opening in the feed tube and fed on the emitting surface. Considerable parasitic losses of neutral cesium atoms occurred in the above-ion engine system, because a part of the atomic cesium beam bypassed the emitting surface. These losses can be decreased by using other systems of feeding the cesium atoms to the emitting surface (feed through a porous emitter, mobile emitters with divided cesium adhesion zones and ion emissions, etc.).

Machine Parts and Mechanisms

Mikhaylov, A. A.
THE INFLUENCE OF WORKING CONDITIONS UPON THE SURFACE FINISH OF CHROMIUM-PLATED PARTS SUBJECTED TO ROTARY SURFACE GRINDING (Vliyaniye Usloviy Obrabotki na Chistotu Poverkhnosti Khromirovannykh Detaley pri Kruglom Naruzhnom Shlifovanii). Nov 59 [13]p. (7 figs. omitted) 3 refs. F-TS-9452/III.
Order from LC or SLA mi$2.40, ph$3.30 60-13298

Trans. of Stanki i Instrument (USSR) 1954 [v. 25, no. 7, p. 21-23].

The greatest influence upon the finish of the ground surface of electrolytic chromium is shown by the material of the abrasive grain, the grain size of the grinding wheel, the magnitude of traverse feed and infeed, and of the peripheral speed of the grinding wheel; to a lesser degree by the hardness of the wheel and the magnitude of the peripheral speed of the work. By using spark-out passes without infeed at the end of the operation, the surface finish may be improved to class 10 - 11 per GOST 2789-51. Increase of the infeed above 0.03 mm/cycle and of the traverse feed above 0.6 of the height of the wheel per revolution of the work, and also operation with wheels of average hardness (ST) will cause the appearance of grinding marks on hardened steel parts and nitrided steels. (Author)

Pruzhanskiy, L. Yu.
CALCULATION OF SPRINGBACK OF BIMETALLIC BUSHINGS (FOR AUTO ENGINES) IN PRESS FORMING. [1960] 1200 words.
Order from HB $3.25 HB-4216

Trans. of Metallov[edeniye i Termicheskaya] Obra[botka] Met[allov] (USSR) 1958, no. 5, p. 13-16.

Calculations regarding the deformation of bushes from bimetallic strip after press forming and resulting residual stresses. Assumptions underlying the calculations. Stress distribution over cross section of blanks after press forming, calculated for decrease or increase, respectively, of radius of curvature. Usefulness of author's equations for designing bushes of new dimensions in the same combinations of materials. (HB abstract)

Tkachenko, F. S.
RECONDITIONING OF MACHINE PARTS BY MEANS OF MULTI-ELECTRODE AUTOMATIC WELDING SET (Vosstanovleniye Detaley Mnogoelekstrodnoy Avtomaticheskoy Naplavkoy). Jan 60 [7]p. RTS 1204.
Order from LC or SLA mi$1.80, ph$1.80 60-15424

Trans. of Elektricheskaya i Teplovoznaya Tyaga (USSR) 1958, no. 9, p. 20-21.

Manufacturing Equipment and Processes

FOR A BETTER ORGANIZATION IN SCIENTIFIC RESEARCH AND STRUCTURAL DESIGN WORK (Uluchshit' Organizatsiyou Nauchno-issledovatel'skikh i Proyektno-konstruktorskikh Rabot) tr. by E. C. B. P. [1960] [5]p. H 6054 A.
Order from OTS $0.50 60-21203

Trans. of Liteynoye Proizvodstvo (USSR) 1959, Jan, p. 1.

The proposals relate to the metal-casting industries.

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. PRIBOROSTROYENIYE (USSR) 1958, NO. 6. SELECTED ABSTRACTS [News of Institutes of Higher Learning. Instrument Manufacture]. [1960] [15]p. SOV/146-58-6-('-8, 10, 12-13, 16)/16.
Order from LC or SLA mi$2.40, ph$3.30 60-17027-6

Consists of selected abstracts in English.

SOVIET INDUSTRIAL DEVELOPMENT: SELECTED TRANSLATIONS NO. 5. 7 Jan 60, 85p. JPRS: 2107-N.
Order from OTS $2.25 60-11157

Trans. of selected articles from 5 Russian periodicals

Contents:
Overall mechanization and automation of production: a deciding factor in the successful fulfillment of the 7-year plan, by P. Boldyrev
Modernization of equipment: an important factor in technological progress, by A. Prokopovich
Is capital repair of equipment necessary? by A. Vladziyevskiy and M. Yakobson
Geographical distribution of industrial production under the 7-year plan
Reserves for increasing labor productivity in the oil industry, by V. L. Kaufman and P. N. Kuz'mov
Expansion of the oil and gas industries of the Ukraininan SSR in 1959-1965, by N. A. Gorev and V. M. Bayevich
The coal and petroleum of Kazakhstan, by M. Isenov
The iron ore base of Central Kazakhstan, by L. S. Shapiro

*STANKI I INSTRUMENT (USSR) 1959 [V. 30] NO. 10, P. 1-48 (Machine Tools and Tools). [1959] 1v. SOV-121-59-10-(1-27)/27.
Order from OTS $0.60, $3.50/6 mo. PB 141 121T-6
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

TECHNICAL ADVANCE IN COMMUNIST CHINA'S LIGHT INDUSTRY. 7 Mar 60, 63p. JPRS: 2320.
Order from OTS $1.75 60-11349

Trans. of selected articles and extracts from Chung-kuo Ch'ing Kung-yeh (Chinese People's Republic) 1958, no. 14, p. 2-8; no. 15, p. 3-7 and no. 17, p. 4-13.

Contents:
How to promote the leap forward in light industry under the new situation, speech by Chu-ch'en Li to the National Conference of Directors of Departments and Bureaus of the Ministry of Light Industry
Porcelain exhibits magic ability to substitute for steel, by Kung-i Kao
The porcelain industry serves the steel industry, by Shih Lei
Graphite crucibles, by Kung-i Kao and Chih-ch'ao Ch'ien
Success achieved in experimental sudden-temperature-change-resistant porcelain tubes, by Chun-i T'ang, Te-ch'ao Li, Chih-ch'ao Ch'ien, and Kung-i Kao
First batch of microscopic slides experimentally produced in Cuba (sic: China?), by Chan-hung Cheng
Special manufacture of thermo-flask glass by the pit furnace method accomplished by master journeyman Yang Hung-Ch'ang at the Nanking Glass Factory, by Hua-hao Yang
Peng-Fou Glass Factory workers invent a silver plating dry kiln, by Chun-ch'ing Chang
Draft design for a pigskin leather factory with a daily capacity of 50 (01 type) and 100 (02 type) skins, by the Light Industry Science Research Institute, Leather Research Laboratory
Design specifications for a small-scale paper mill with a daily capacity of one metric ton, by the Paper Manufacturing Design Institute, Ministry of Light Industry
The ceramics industry enters a new historical period, by the staff of Chung-kuo Ch'ing Kung-yeh

USSR MATERIALS AND MATERIALS PROCESSING EQUIPMENT [NO. 20, 12 Apr 60]. [1960] [43]p. 107 refs.
Order from LC or SLA mi$3.30, ph$7.80 60-15996

Consists of unevaluated information selected from Russian-language publications.

Information is presented on: Chemical industry, chemical machinery, petroleum and gas, solid fuels, ferrous metallurgy, metallurgical machinery production, and nonferrous metallurgy and minerals. (See also 60-13544, 60-15102, 60-15600)

WORK SHEET OF THE SOCIETY OF GERMAN ENGINEERS: IMPACT EXTRUSION (PRACTICAL APPLICATION). [1959] [37]p. 58 refs.
Order from SLA mi$3.00, ph$6.30 59-17847

Trans. of mono. VDI-Arbeitsblatt: Kaltfleisspressen, Praktische Anwendung, VDI 5-3138, Mar 53.

Akimenko, A. D. and Skvortsov, A. A.
HEAT TRANSFER IN ZONE OF SECONDARY COOLING OF CONTINUOUS STEEL CASTING INSTALLATIONS. [1960] 2700 words.
Order from HB $6.50 HB-4796

Trans. of Nauchn[yye] Dokl[ady] Vyssh[ey Shkoly]. Metallurgiya (USSR) 1959, no. 2, p. 123-130.

General lack of data on heat transfer in secondary cooling zone, such as are needed for calculation of water consumption, amount of heat extracted by the different methods of cooling, optimum length of secondary-cooling zone, etc. Experimental procedure; method of calculation of heat extraction coefficients and factors influencing them. Effect of intensity of secondary cooling on character of solidification. Data on four stages of cooling by water sprays. Relationship between heat extraction coefficient and water consumption. Experimental data on use of air (compressed; from blowers; free convection) instead of water in secondary cooling. Promise of two-phase (air/water mixture) cooling. (HB abstract)

Bodrov, I. A. and Kudryavtsev, N. T.
ELECTROPLATING OF CHROMIUM FROM SOLUTIONS OF TRIVALENT CHROMIUM SALTS (Elektrokhimicheskoye Kromirovaniye iz Rastvorov Trekhvalentnykh Soley Khroma). Jan 60 [6]p. RTS no. 1133.
Order from LC or SLA mi$1.80, ph$1.80 60-13474

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 4, p. 26-27.

Good results were obtained with a solution having the composition: 0.5 mol/l of $Cr_2(SO_4)_3$, 2.5 mol/l of $(NH_4)_2SO_4$, and 1g/l of $FeSO_4 \cdot 7H_2O$ at a pH of 2.3 to 2.7, a temperature of about 40°, and a current density at the cathode of 8 to 10 amp/sq dm. The current efficiency of the metal deposition process was 22 to 23%. The anodes were made of magnetite. The bath did not contain a diaphragm. In the case of anodes of fused magnetite there is practically no oxidation of trivalent to hexavalent chromium over a wide range of current densities. The use of magnetite anodes enables control and maintenance of a constant concentration of iron salt in the electrolyte owing to the partial dissolution of iron during electrolysis. Cooling the solution to 20° for a limited period (24 hr), until the green modification of the chromium salts was completely changed to the sparingly soluble violet modification, did not have any effect on the quality of the deposits or the current efficiency.

Chikel', I.
NEW TECHNOLOGICAL METHODS IN STUDYING THE FLUIDITY OF METALS AND FORMATION OF SHRINKAGE CAVITIES (Novyye Tekhnologicheskiye Metody Issledovaniya Zhidkotekuchesti Metalla i Obrazovaniya Usadochnykh Rakovin) tr. by E. C. B. P. [1960] [24]p. (16 figs. omitted) 18 refs. H 6054 C.
Order from OTS $0.75 60-21205

Trans. of Liteynoye Proizvodstvo (USSR) 1959, Jan, p. 27-32.

Dzhafarov, A. M.
ON THE EFFECT OF THE BRIGHT STRIP UPON THE STRENGTH OF THE WELD METAL IN RESISTANCE BUTT WELDING (K Voprosu o Vliyanii Svetloy Poloski na Prochnost' Metalla Shva pri Kontaktno-Stykovoy Svarke). Mar 60 [7]p. 9 refs. RTS 1264.
Order from LC or SLA mi$1.80, ph$1.80 60-15730

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Neft' i Gaz (USSR) 1958, no. 8, p. 115-119.

The investigations were carried out on medium-carbon St. 5 steel, the analysis of which was: C 0.32 per cent, Mn 0.70 per cent, Si 0.31 per cent, P 0.23 per cent, and S 0.035 per cent. Measurements showed that the hardness of metal in the bright strip is considerably lower than in the parent metal, while the structure of the bright strip consists mainly of ferrite. The bright strip is formed as the result of decarburization of the ends to be joined, during the heating preceding the fusion. The width of the ferrite strip depends on the welding conditions: with increasing current and time of its application the width of the bright strip increases, and with increasing pressure it decreases.

Fal'kevich, A. S. and Neyfel'd, L. E.
COMPARATIVE EFFECTIVENESS OF WELD INSPECTION WITH VARIOUS RADIOISOTOPES. [1960] 1300 words.
Order from HB $3.40 HB-4492

Trans. of Svar[ochnoye] Proizv[odstvo] (USSR) 1956, no. 9, p. 23-24.

Results of experimental work performed at several USSR research institutes for the petroleum industry on the use of Cs-134, Ir-192, Cs-137, and Eu-154 as replacements of Co-60, for the inspection of welds in large and small diameter pipelines, storage tanks and other oil industry structures. Merits of ampoules of high intensity in regard to sensitivity, efficiency, and speed of inspection. Specific recommendations regarding the use of Cs-134. (HB abstract)

Fal'kov, A. I.
EFFECT OF TREATMENT OF 1% C, 1.5% Cr BEARING STEEL WITH BORON UPON SOME PROPERTIES IN As-CAST STATE. [1960] 3300 words.
Order from HB $7.60 HB-4627

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Met[allurgiya] (USSR) 1959, no. 1, p. 113-120.

Effect of boron additions of 0.001-0.003% on quenching temperature range of cast bearing steel, and hence, on quenching cracks and residual stresses, especially in heavy or intricate-section components. Mechanical properties. Microstructure of standard vs. boron-treated as-quenched bearing steel. Effect of boron on chromium and carbide contents of solid solution of specimens variously heat treated. Relation between relative compression and load or reduced stress, resp. (HB abstract)

Ginberg, A. M. and Gorina, A. P.
ZINC PLATING OF STEEL SPRINGS WITHOUT DETERIORATION OF THEIR MECHANICAL PROPERTIES. Jan 60 [7]p. RTS no. 1135.
Order from LC or SLA mi$1.80, ph$1.80 60-15070

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 4, p. 38-39.

The possibility of retaining the elastic properties of quenched (Rockwell C 47-55) steel springs after zinc plating was studied. A deterioration in the mechanical properties of the steel took place as a result of cathodic, anodic, and chemical degreasing. The best results were obtained with anodic degreasing, at a current density of 6 amp/sq dm. On pickling in 2 to 2.5N hydrochloric acid without adding the inhibitor (PB-8), the elastic properties were reduced 52% within 20 minutes. After pickling for the same time in an inhibited solution the loss was only 11%, and only 2% after pickling for 5 minutes. Ultrasonic vibrations considerably accelerated the pickling process. There was no loss of elasticity during the first minute of pickling. As the pickling continued, however, a marked drop took place. This is explained by the desorption of the inhibitor from the surface of the metal as a result of the cavitation which occurs in the

pickling solution following the application of ultrasonics. In ordinary plating the smallest change in mechanical properties occurred in the ammoniacal, the borohydrofluoric-acid, and the sulfate plating solutions. The maximum loss in mechanical properties took place when plating in the cyanide solution. In a cyanide electrolyte the best results were obtained at a current density of 2 amp/sq dm. Reversing the current when plating in cyanide and sulfate electrolytes (10:1 ratio of cathodic to anodic period) had an unfavorable effect on the elastic properties. When plating in cyanide and acid solutions the application of ultrasonics improved the mechanical properties.

Medovar, B. I., Safonnikov, A. N., and Lents, R. O.
RUPTURE STRENGTH OF AUSTENITIC WELDS MADE UNDER A FLUX (SUBMERGED ARC) UNDER ARGON AND CARBIDE DIOXIDE. [1960] 5400 words.
Order from HB $9.80 HB-4804

Trans. of Avtomatich[eskaya] Svarka (USSR) 1958, v. 11, no. 6, pp. 13-31.

Lack of data on rupture strength of austenitic welds made by various welding processes. Authors' study of high-temperature properties, fractures and microstructures of 18-8 Ti and 23-18 welds made under a high-silicon, manganiferous, and an 80% fluorspar + 20% sodium fluoride flux, also under argon and carbon dioxide. Experimental procedure; results. Explanation of differences in results obtained with the different welding practices. Effect of selection of electrode and of carbon content of weld metal on rupture strength and room-temperature tensile properties. Correlation between oxygen and nonmetallic inclusion contents of weld metal, composition, shape and distribution of inclusions, and rupture strength. (HB abstract)

Nikolaychik, N. P. and Nikolaychik, Ye. N.
IMPROVEMENT OF THE QUALITY OF INGOTS BY MEANS OF ULTRASOUND (Uluchsheniye Kachestva Slitkov pri Pomoshchi Ul'trazvuka) tr. by S. E. [1960] [11]p. (9 figs. omitted). H-4528.
Order from OTS $0.50 60-21023

Trans. of Stal' (USSR) 1957 [v. 17] no. 4, p. 322-325.

Iron carbide alloys cast under the action of ultrasonic waves showed improved macro- and microstructure, decreased gas solubility in metal, and improved mechanical properties.

Schinn, R.
ULTRASONIC INSPECTION, ONE OF THE METHODS OF TESTING (HEAVY-DUTY STEEL) CASTINGS. [1960] 2000 words.
Order from HB $4.90 HB-4787

Trans. of Giesserei (West Germany) 1959, v. 46, no. 26, p. 977-980.

Limited value of test data on materials based on well-defined specimens, compared with the actual properties of entire constructional components. Summation of 8 years' experience in ultrasonic inspection of high-quality forgings. Difficulties obstructing the non-destructive testing of castings. Author's test station with movable walls. Usefulness of ultrasonic inspection, particularly in conjunction with radiography, of cast steel components of modern steam turbines to avoid heavy damage in time. Practical examples: harm done by chaplets left in castings; quick location of damage by ultrasonic scanning; damage to turbine steam piping and turbine casings and how this damage was detected. (HB abstract)

Schumacher, Waldemar.
NEW KNOWLEDGE CONCERNING CARBON DIOXIDE PROCESS (Neue Erkenntnisse über das Kohlensäureverfahren). [1959] [27]p. 6 refs. (foreign text included).
Order from SLA mi$2.70, ph$4.80 60-10279

Trans. of Giesserei (West Germany) 1955, v. 42, no. 24, p. 653-659 (German Society of Professional Founders, rept. no. 11).

The rapid spread of the carbon dioxide hardening process in foundry practice stands in close relationship to the results of special research focused on this process concerning the heat conductivity and strength properties of the sand mixtures and their relationship to the disintegration of the molds and cores after casting. Gas evolution is also significant. The enrichment in alkali considered detrimental to a repeated use of the sand does not reach any considerable extent according to the present investigations. Recent examples of application show the versatility and economy of the process. (Author)

Sergeychev, N. F.
FACTORS DETERMINING THE AMOUNT OF MOULD TAPER ON PATTERNS (Faktory, Opredelyayushchiye Velichinu Formovochnogo Uklona na Modelyakh) tr. by E. C. B. P. [1960] [5]p. H 6054 B.
Order from OTS $0.50 60-21204

Trans. of Liteynoye Proizvodstvo (USSR) 1959, Jan, p. 8.

Shapiro, I. S.
THE ECONOMY OF ARCAIR CUTTING (Tekhniko-ekonomicheskaya Effektivnost' Vozdushno-dugovoy Rezki). Fel 60 [10]p. 1 ref. R. T. S. no. 1273.
Order from ...C or SLA mi$1.80, ph$1.80 60-15428

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 11, p. 33-34.

Information is presented on the effect of the basic technological parameters of air-arc cutting, and the technical and economic effects of air-arc and oxygen-flux cutting are compared. It is concluded that the efficiency of air-arc cutting depends on the intensity of current and that high economic effects can be obtained at the maximum current intensities. In cutting 20 mm thick stainless steel, air-arc cutting proved to be more economical than oxygen flux cutting, and a reduced metal thickness increased the relative efficiency of the process. The electrode diameter has no considerable influence in surface cutting but is an important factor in separation cutting, where the efficiency increases with reduced electrode diameters.

Taran, V. D., Bobritskiy, N. V., and others.
RESEARCH WORK ON THE PRESSURE WELDING OF PIPES (Issledovaniye Protsessa Pressovoy Svarki Trub). Feb 60 [13]p. 7 refs. RTS 1263.
Order from LC or SLA mi$2.40, ph$3.30 60-15561

Trans. of *Svarochnoye Proizvodstvo (USSR) 1959, no. 11, p. 12-14.

The microstructures and properties of pressure welded joints were studied to determine their formation mechanism. Fusion welding and pressure welding with high frequency induction heating were used to butt-weld mild steel pipes each containing radioactive Fe^{59} in one end, to non-radioactive pipes. Sections of the welds were cut for test purposes. Auto-radiograms and tests of physical properties (bending, tension and impact on non-radioactive butt-welded pipes) were made before and after post-heat treatments of 3, 6 and 100 hours. Results indicated that the weld joint is formed by a metallic bond and not by a diffusion of Fe atoms or the intergrowth of metal grains. Heating to a high temperature and upsetting assisted the close approach of atoms to form a metallic bond, but a short post-heat-treatment produced only slight improvement in the mechanical properties of the welded joint because of the break-up of metal grains and the elimination of over-heating after effects.

Vagramyan, A. T. and Kudryavtsev, N. T.
ACHIEVEMENTS IN THE ELECTROPLATING FIELD (Uspekhi v Oblasti Gal'vanostegii). Dec 59 [8]p. RTS no. 1139.
Order from LC or SLA mi$1.80, ph$1.80 60-13472

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 7, p. 62-68.

Vedishche, A. Y.
WHAT WILL BE BUILT AND WHERE, DURING THE PERIOD 1959-65. 26 Mar 60, 58p. JPRS: 2366.
Order from OTS $1.50 60-11395

Trans. of mono. (brochure) Chto i Gde Budet Postroyeno v 1959-1965 Godakh, Moscow, 1959, p. 3-77.

Zwehl, W. v.
ELECTRICAL WELDING OF ALUMINUM. [1946] [11]p. (refs. omitted).
Order from SLA mi$2.40, ph$3.30 60-14413

Trans. of Aluminium (Germany) 1940, v. 22, no. 5, p. 266-270.

Transport, Traction and Hoist Facilities

TRANSPORTATION, COMMUNICATIONS, AND ELECTRIC POWER IN THE USSR [NO. 27, 25 APR 60]. [1960] [62]p. 95 refs.
Order from LC or SLA mi$3.90, ph$10.80 60-17166

Trans. of unevaluated information selected from Russian-language periodicals.

See also 60-13545, 60-15450

Fitterman, B.
HOW THE NEW AUTOMOBILE WAS CREATED (Kak Sozdavalaya Novyy Avtomobil') tr. by E. C. B. P. [1960] [6]p. H 4939.
Order from OTS $0.50 60-21216

Trans. of Za Rulem (USSR) 1959 [v. 17] no. 3, p. 15-16.

The experimental automobiles are described which proceeded the new Soviet "micro-liter". It appears to be a 4-cylinder 23-horsepower car.

Mishin, N.
MOBILE AUTO REPAIR SHOP PAM-58 (Peredvizhnaya Autoremontnaya Masterskaya PAM-58) tr. by Elena Wolkonsky. [1960] 2p. (2 illus. omitted) 1 ref. H-5010.
Order from OTS $0.50 60-21057

Trans. from Avtomobil'nyy Transport (USSR) 1959 [v. 37] no. 3.

The Leningrad Factory Combine, GARO, studied and analyzed carefully, all comments and wishes (submitted by) the workers of the Automotive Transportation. On the basis of these responses, a model of a new Mobile Auto-Repair Shop, PAM-58, was developed and released. Mobile Auto-Repair Shop, PAM-58, is displaced on two, five-ton, trailers (model) A-731. (It is equipped) with turn-tables on ball-bearings, and hydraulic brakes. In comparison with the repair shop PAM-731, the electric power (output) was increased from seven and two tenths kilowatt to nine and five tenths kilowatt. The body of the leading trailer, PAM-58, is of Van-type, (it is of) frame (construction), all-metal, welded (type). The frame is constructed of lightened sections (Translators note: Light-weight siding) the coupling of which provides necessary toughness and strength of the construction (assembly). Interior surface of the van is trimmed by decorative, moisture-resistant plywood. Insulation packages, consisting of corrugated aluminum foil and wool waste,

are installed into the sections of the van between the (exterior) wall and the trimming (of the interior). This assures dependable insulation at any given outside temperatures. The area of the van is greatly enlarged. There are also added appliances for the removal of engines and other heavy parts and assemblies of the vehicles. All of these primary changes, gave (it) the possibility to conduct intermediate repairs of vehicles under field conditions. Trial model (of the) PAM-58 successfully passed the factory tests and was dispatched to the Auto Economy (Translators note: transportation combine) of the ALTAI Region, for operation. In 1959, the factory is contemplating the production of the Mobile Auto Repair Shops of that type (PAM-58). (Extracted from the report)

Selz.
TRANSPORTATION STRESS AND TESTS OF PACKING, tr. by Reinhold Hoffmann. May 59 [46]p. (table omitted) 1 ref. Translator's Document no. 2; Bureau of Ships Trans. 674.
Order from LC or SLA mi$3.30, ph$7.80 59-18318

Trans. of die Neue Verpack[ung] (Germany) 1958 [v. 11] June, p. 492-505.

Strokin, N. I.
DEVELOPMENT OF THE FATHERLAND'S MOTOR VEHICLE CONSTRUCTION IN THE LIGHT OF THE DECISIONS OF THE CONGRESS OF THE CPSU (NO. 21) (Razvitiye Otechestvennogo Avtomobilestroyeniya v Svete Resheniy XXI S"ezda KPSS) tr. by Elena Wolkonsky. [1960] [5]p. 1 ref. H-5013.
Order from OTS $0.50 60-21217

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1959, no. 4, p. 3-4.

Production goals are given for the 1959 to 1965 seven-year plan.

Velikanov, D., Mikhaylov, N., and Fedorov, S.
OPERATIONAL REQUIREMENTS FOR MOTOR VEHICLES TO BE PRODUCED DURING 1959-65 [AND] RESTORATION OF MOTOR VEHICLE TIRES BY RETREADING (Ekspluatatsionnyye Trebovaniya k Avtomobilyam Namechayemym k Proizvodstvu v 1959-65 Godakh [and] Vosstanovleniye Avtomobil'nykh Shin Nalozheniyem Protektora) tr. by E. C. B. P. [1960] [18]p. (9 figs. omitted) 2 refs. H 4946 A. B.
Order from OTS $0.50 60-21431

Trans. of Avtomobil'nyy Transport (USSR) 1959 [v. 37] no. 5, p. 36-41 and p. 16-18.

MATERIALS

Bonzel, J.
RELATION OF CONCRETE COMPRESSIVE STRENGTH TO SHAPE [OF SPECIMEN]. [1960] 25p. 49 refs.
Order from SLA mi$2.70, ph$4.80 60-14256

Trans. of Beton und Stahlbetonbau (Germany) 1959, v. 54, no. 9, p. 223-228 and no. 10, p. 247-248.

A survey.

Czernin, W.
ON THE PHYSICAL PROPERTIES OF HARDENED CEMENT. [1960] 14p. 4 refs.
Order from SLA mi$2.40, ph$3.30 60-14259

Trans. of Betonstein-Zeitung (West Germany) 1959 [v. 25] no. 9 [p. 376-382].

By means of electronic microphotographs the gradual filling out of the capillary space in the cement paste is demonstrated. The physical structure of the cement gel is discussed and quantitative data are given concerning the hydration process. This paragraph deals especially with the role of capillary and gel water in hardened cement pastes. These considerations reveal the necessity of determining the degree of hydration in order to give a complete definition of the cement paste component in mortars and concretes. The degree of hydration cannot be substituted by the age of hardening since storage conditions as well as water cement ratio very strongly influence the rate of hydration. Examples are brought forward to demonstrate the simple relations between degree of hydration, water cement factor and the strength of cement and concrete. Finally the possibilities for the determination of the degree of hydration are discussed. (Author's English summary) (Paper presented at the Austrian Concrete Session, April 11, 1959.)

Delacour, J., Reyne, M. and others.
STUDY OF THE EFFECT OF PERFORATION ON SET CEMENTS (Étude du Comportement des Ciments Durcis Soumis à des Perforations). [1960] [29]p. 4 refs.
Order from SLA mi$2.70, ph$4.80 60-14303

Trans. of Revue de l'Institut Français du Pétrole [et Annales des Combustibles Liquides] (France) 1959, v. 14, no. 4/5 [p. 599-619].

A bore hole is brought into selective production through a cement lining cast behind the casing and perforated. This study, dealing with factors such as the properties of the set cement lining, method of firing, pressure on the cement lining, on which the efficiency of the perforations and leak-proofness of the string depend, shows clearly that, on the one hand, perforation must be carried out as quickly as possible after cementation is finished and, on the other hand, that the ideal method of perforation in the case under review is the use of two types of charge (conventional and fracturing). (Author)

Kreijger, P. C.
DEVELOPMENTS IN THE FIELD OF EXPANDING CEMENTS (ZWELCEMENTEN). [1960] 5p. 16 refs.
Order from SLA mi$1.80, ph$1.80 60-14260

Trans. of Cement (Netherlands) 1959, v. 11, no. 3, p. 293-294.

A survey.

Ceramics and Refractories

Kishii, Tohru.
DUMET-TO-GLASS SEALING. Jan 60, 21p. 10 refs.
Order from SLA mi$2.70, ph$4.80 60-14520

Trans. of Toshiba Review (Japan) 1958, v. 13, no. 8, p. 826-831.

By employing dumet wires with diameters of 1 mm and copper ratios of 22 and 31% together with three kinds of glass much differing in characteristics from each other, the writer made cylindrical seals and observed radial-tangential or axial stresses in the glass and their changes with the temperature. By comparing the results of the experiments with those of the calculation based on the theory proposed by Dr. Takagi, he determined the equivalent setting points. When the glass-dumet diameter ratio is about 7, the setting points may be assumed to be equal to the annealing points of glasses for the axial stress, and 10 to 20°C lower for the radial-tangential stress. Cooling rates or holding temperatures during the annealing seems to have no practical effect. In many cases, inflection points of core metals, too, have no effects as to cause excess stress during the cooling, while the stress in the seals are satisfactorily small irrespective of differences of expansion or contraction between the core metal, copper and glass. Conditions for good sealing are also discussed herein in conformity to the above-mentioned theory and experimental results. (English abstract in the original paper) (See also 59-17451)

Konopicky, K.
VOID IMAGE AND VOID DISTRIBUTION DETERMINED BY MEASUREMENT. [1960] 3p. 6 refs.
Order from SLA mi$1.80, ph$1.80 60-14258

Trans. of Tonindustrie-Zeitung und Keramische Rundschau (West Germany) 1959, v. 83, no. 22, p. 535-536.

Various types of pore textures were examined and compared with respective values of pore size distribution (obtained by the mercury impregnation method). Slit-formed pores demonstrate a continuum of equivalent values for coarse and medium pores. (Author)

Fuels, Lubricants, and Hydraulic Fluids

HIGH-GRADE FUELS AND OILS; RESULTS OF NEW TECHNOLOGY. [1960] 3p.
Order from ATS $6.00 ATS-46M38R

Trans. of Khim[iya] i Tekhnol[ogiya] i Masel (USSR) 1959, v. 4, no. 11, p. 1-3.

Apresov, S. M.
CERTAIN THEORETICAL ASPECTS OF THE ORIGIN OF PETROLEUM AND THE FORMATION OF OIL DEPOSITS [O Nekotorykh Teoreticheskikh Polozheniyakh Proiskozhdeniya Nefti i Obrazovaniya Neftyanykh Mestorozhdeniy]. [1960] 3p.
Order from ATS $5.00 ATS-08M39R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[eniy]. Neft' i Gaz (USSR) 1959, v. 2, no. 3, p. 3-4.

Basevich, V. Ya.
EFFECT OF PRELIMINARY VAPORISATION ON COMPLETENESS AND STABILITY OF COMBUSTION OF ATOMISED (LIQUID) FUEL (O Vliyanii Predvariteye'nogo Ispareniya na Polnotu i Ustoychivost' Goreniya Raspylennogo Topliva). Feb 60 [9]p. 10 refs. RTS 1225.
Order from LC or SLA mi$1.80, ph$1.80 60-15649

Trans. of Akademiya Nauk SSSR. Otd[eleniye] Tekh[nicheskikh] Nauk. Izvestiya, 1958, no. 2, p. 26-32.

In stable combustion the completeness of combustion increased continuously over the whole range of increasing degree of vaporisation, and was a maximum for completely vaporised mixtures with a range of compositions of the mixture of the vaporised part of the fuel from $\alpha_I = \infty$ ($\varphi = 0$) to $\alpha_I = 1.3$ ($\varphi = 77\%$) corresponding to the lower limit of flame propagation. This means that the very lean fuel-air mixtures formed up to the inlet to the combustion zone burn in the turbulent flame of atomised fuel with a velocity comparable with the rate of combustion of droplets (more accurately fuel vapour) formed around the droplets. Molecules of the fuel and of oxygen are believed to diffuse into the reaction zones of the burning droplets and burn in these zones. A comparison of the dependence of the completeness of combustion on the degree of vaporisation for mean droplet diameters d_k of 90 and 290 μ shows that, although the rate of combustion is higher with the finer droplets, the difference is small. The effect of turbulence is to increase the heat and material transfer to a greater extent in the case of the coarser than in that of the finer particles, and thus obliterate the dependence of the rate of burning on the diameter of the droplets.

Chertkov, Ya. B., Zrelov, V. N., and Rudakov, V. V.
HEATING VALUES OF HYDROCARBONS (O Teplote Sgoraniya Uglevodorodov). [1960] [6]p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14301

Trans. of Neftyanoye Khozyaystvo (USSR) 1954, v. 32, no. 12, p. 53-57.

A brief literature survey indicated that an increase in the length of saturated side chains attached to a benzene ring results in a substantial increase in the volumetric and gravimetric heating value. In naphthenic hydrocarbons with saturated side chains, an increase in the volumetric heating value results in an insignificant change in the gravimetric value. The density and volumetric heating value increase with an increase in the number and compactness of methyl groups attached to the main chain of paraffinic, or rings of the naphthenic and aromatic hydrocarbons. The production of liquid fuels with maximum volumetric and gravimetric heating values is possible only by compounding hydrocarbons on the basis of their chemical structure.

Gantsevich, L. B. and Remnev, V. F.
AN ANALYZER OF WATER CONTENT IN PETROLEUM. [1960] 6p.
Order from LC or SLA mi$1.80, ph$1.80 60-14336

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1959 [v. 4] no. 3, p. 17-[20].

Kortunov, A. N., Antropov, P. Ya. and others.
THE POTENTIAL OF THE USSR GAS INDUSTRY: EXCERPT. 5 Feb 60, 171p. JPRS: 1152-D.
Order from OTS $3.00 60-31043

Trans. of mono. Gasovyye Resursy SSR, Moscow, 1959, p. 5-103.

Contents:
Objectives in the development of the Soviet gas industry, by A. N. Kortunov
Principal objectives in gas prospecting for the period 1959-1965, by P. Ya. Antropov
Place of natural gas and petroleum in the fuel picture of the USSR and objectives in increasing the efficiency of prospecting, by V. A. Kalamkarov

Losev, Boris Ivanovich.
SOLID GASOLINE (Tverdyy Benzin) tr. by N. C. Wagner. [1960] [22]p. (3 figs. omitted). H 4991.
Order from OTS $0.75 60-21208

Trans. of Vsesoyuznoye Obshchestvo po Rasprostraneniyu Politicheskikh i Nauchnykh Znaniy. Seriya 8 (USSR) 1958, Issue 11, no. 11.

The principles and technological processes of producing solid gasoline and its use in the Soviet national economy are discussed. (See also 59-11999)

Leather and Textiles

CHEMICAL FIBERS: BASED ON THE POWERFUL DEVELOPMENT OF THE TEXTILE INDUSTRY (Khimichyeskiye Volokna: Osnova Moshchnovo Razvitiya Tekstil'noy Promyshlennosti) tr. by Vawryk. [1960] [8]p. H-4019 A.
Order from OTS $0.50 60-21218

Trans. of Tekstil'naya Promishlennost' (USSR) 1958 [v. 18] no. 8, p. 1-4.

Goals for the next 7-year period are discussed.

Babkina, I. N., Byushgens, S. S., and Dmitriyeva, L. A.
UTILIZATION OF SYNTHETIC FIBERS IN EVERY DAY SILK FABRICS (Ispol'zovaniye Sinteticheskikh Volokon v Bitobikh Shyelkovikh Tkanyakh) tr. by Vawryk. [1960] 7p. H-4019 C.
Order from OTS $0.50 60-21432

Trans. of Tekstil'naya Promishlennost' (USSR) 1958 [v. 18] no. 8, p. 15-17.

Bianco, Battaglioli.
FIBERS FROM POLYPROPYLENE HAVING IMPROVED DYEING CHARACTERISTICS AND A PROCESS FOR THEIR PREPARATION. [1960] 7p.
Order from LC or SLA mi$1.80, ph$1.80 60-14304

Trans. of Italian patent 566945, Cl. D06b, by Montecatini, applied 27 Sep 56, approved 21 Sep 57.

A procedure is described for the preparation of fibers and yarns, made essentially of crystalline polypropylene and presenting improved dyeing properties, by extrusion of the fused material followed by drawing. The procedure is characterized by the addition to the polypropylene and careful blending (in melting state and before extrusion) of an epoxy resin in soft state in a quantity varying between 5 and 20%. The epoxy resin is prepared from epichlorohydrin and 4, 4'-dioxy-diphenyl-dimethyl methane.

Dishka, D. and Khaymashi, T.
THE VIBRATIONAL FATIGUE TESTING OF FABRICS (Vibratsionnoye Ispytaniye Tkaney na Ustalost'). Mar 60 [10]p. 6 refs. RTS 1387.
Order from LC or SLA mi$1.80. ph$1.80 60-15676

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 82-86.

In the process of vibrational fatigue testing, fabric undergoes residual elongation which increases rapidly at the beginning of testing, but slowly thereafter. The action of hysteresis, under the influence of repeated loading, falls significantly in every case. In the process of repeated loading, the coefficient of rigidity of

the fabric, taken overall, rises. In the process of repeated loading, the damping coefficient of fabrics tested falls. Comparative tests of strips of woollen fabrics finished in different ways have demonstrated that by this means it is possible to determine the different degrees of fatigue resistance of different fabrics. (Author)

Dzhokharidze, G. V.
THE EVENING OF TOPS (Vyravnivaniye Grebennoy Lenty). Feb 60 [9]p. RTS 1369.
Order from LC or SLA mi$1.80, ph$1.80 60-15655

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 34-37.

Faynberg, E. Z., Gorbacheva, V. O., and Mikhaylov, N. V.
A STUDY OF MOLECULAR STRUCTURE OF SYNTHETIC FIBERS. XIII. POLYENENITHAMIDE. [1960] 5p.
Order from ATS $8.65 ATS-51M38R

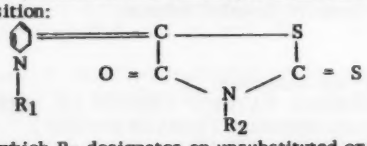
Trans. of Vysokomol[ekulyarnyye] Soyedineniya (USSR) 1959, v. 1, no. 1, p. 17-20.

Photographic Materials

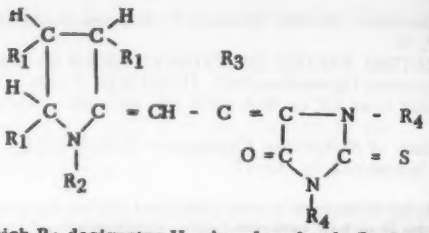
SENSITIZATION OF PHOTOPAPER EMULSIONS BY MEANS OF MEROCYANINES. [1960] 13p.
Order from RIS $10.50 RIS rept. 4590

Trans. of unidentified mono. (patent description?) pub. by I. G. Farbenindustrie A. G., Wolfen, PB 19920.

A process is described for sensitizing silver halide emulsions, particularly silver chloride and silver bromide emulsions for photopapers, by means of merocyanines. The process is characterized by the use of a mixture of a sensitizer of the following composition:



in which R_1 designates an unsubstituted or substituted alkyl or unsubstituted or substituted aralkyl, and R_2 designates an unsubstituted or substituted alkyl, an unsubstituted or substituted phenyl or alkylcarboxylic acid ester, with an additional sensitizer of the following composition



in which R_1 designates H, phenyl or furyl, R_2 designates alkyl or phenyl, R_3 designates H or alkyl, and R_4 alkyl.

Galashin, Ye. A. and Tatevskiy, V. N.
PHOTOGRAPHIC REVERSAL PHENOMENA. [1960] 12p. 42 refs. T-3111.
Order from LC or SLA mi$2.40, ph$3.30 60-14278

Trans. of Zhur[nal] Nauch[noy] i Prikład[noy] Fot[ografii' i Kinematografii (USSR) 1959, v. 4, no. 3, p. 175-182.

The effect of bromides, desensitizers, oxidizers, and reducers on photographic reversal when a silver bromide emulsion is exposed simultaneously to long and short wavelength radiation was studied. On the basis of experimental data, an assumption was expressed on the identity of the mechanism of reversal in the Herschel effect and solarization. A coagulation theory of Herschel effect was suggested. (Author)

Sheberstov, V. I.
THE DEPENDENCE OF AGING UPON SOME EMULSIONS AND EXTERNAL-EMULSION FACTORS. Pt. 2 of a Study of the Processes of Aging and Stabilization of Photographic Materials. [1960] 20p. 15 refs. T-3079.
Order from LC or SLA mi$2.40, ph$3.30 60-14276

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 241-252.

Some factors originating from the emulsions and others which affect the emulsions from outside in the aging process of photographic emulsions, particularly the process of "anomalous aging," during which the speed of emulsions decreases without the fog increasing to any substantial extent, are examined. The degree of acidity of the subbing layer does not affect the "anomalous aging" of photographic emulsion. An increase in the pBr of the emulsion (increase in the concentration of Ag^+ ions) increases the rate of normal aging and retards anomalous aging. Optically sensitized emulsion materials, as a rule, have a greater tendency toward anomalous aging than the non-sensitized emulsions. The rate of anomalous aging depends upon the structure of the sensitizing dye. Water vapors absorbed by an emulsion lead to a sharp decrease in the speed of the emulsion, but by drying the layer, if the effect of moisture was not too prolonged, the light sensitivity is restored. Anomalous aging cannot be attributed to the desensitizing effect of moisture, but an increase in the moisture

content of the emulsion increases the rate of anomalous aging. Adding small amounts of copper ions to the emulsion increases the rate of anomalous aging of photographic emulsions. (Author) (See also 59-19831)

Shor, M. L and Vol, B. G.
SENSITIZATION OF PHOTOGRAPHIC EMULSIONS WITH POTASSIUM IODIDE. [1959] 12p. 7 refs. T-3119.
Order from LC or SLA mi$2.40, ph$3.30 60-14279

Trans. of Leningrad[skiy] Inst[itut] Kinoinzhenerov. Trudy (USSR) 1955, no. 3, p. 179-187.

It was determined that the spectral distribution of the light sensitivity of silver bromide emulsions does not change when the emulsion is sensitized with secondary potassium iodide. Experiments were made to prove the inter-relationship between finishing and sensitization with potassium iodide. A hypothesis was expressed on the mechanism of sensitization with potassium iodide which assumes activation of the metallic silver centers. (Author) (See also 59-10773)

Tumanovskiy, Ye. L
EFFECT OF NON-UNIFORMITY OF FRICTION OF THE FILM IN THE FILM CHANNEL UPON THE MAGNITUDE OF UNSTEADINESS OF THE FRAME. [1960] 8p. 4 refs. T-3118.
Order from LC or SLA mi$1.80, ph$1.80 60-14277

Trans. of Tekhnika Kino i Televideniya (USSR) 1959, v. 3, no. 7, p. 19-22.

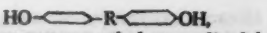
This paper covers the problem of the effect of instability of friction of the film in the film channel on the projector. Recommendations are made for the reducing of this unsteadiness. A whole complex of factors, depending upon the film and the entire apparatus for the reproduction and application of the film affects the magnitude of the instability of the image during the projection of motion picture films. The investigation shows that one of the principal factors causing unsteadiness of the frame in the projector is the non-uniformity of the friction of the film in the film channel. (Author)

Plastics

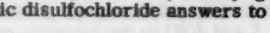
Conix, Andre Jan and Laridon, Urbain Leopold.
NEW THERMOPLASTIC POLYESTERS: IMPROVEMENT PATENT. [1960] 14p.
Order from LC or SLA mi$2.40, ph$3.30 60-14207

Trans. of improvement patent to the Belgian patent 563.173 of 13 Dec 57, by Gevaert Photo-Producten N. V., Mortsel.

A procedure is described for the preparation of linear aromatic polysulfonates by polycondensation of a salt of a biphenol with an aromatic disulfochloride, with the characteristic, that the biphenol answers the general formula:



wherein R represents a methylene radical ($-CH_2-$) that could be substituted with alkyl-, cycloalkyl-or arylgroups, or form a part of a cycloalkyl group, and that the aromatic disulfochloride answers to the general formula:



wherein R', represents a direct bond or bivalent radical, such as an etherfunction (-O-) or a methylene radical ($-CH_2-$), that could be substituted with alykl-, cycloalkyl-or aryl groups or form a part of a cycloalkyl group. The polycondensation is performed in a reaction environment consisting of immiscible liquids, whereby one of the liquids is a solvent as well for the disulfo chloride as for the formed polysulfonate, while the other liquid is a solvent for the biphenolate.

Girard, J. and Thiot, A.
NEW COMPLEX ORGANO-PHOSPHORUS PHENOPLAST FOR THE MANUFACTURE OF FLAMEPROOF MATERIALS. [1960] 7p.
Order from LC or SLA mi$1.80, ph$1.80 60-14205

Trans. of French [patent] application 778 117, by Bakelite Co. and Omnium de Products Chimiques pour l'Industrie et l'Agriculture, "Opcia", 30 Oct 58.

The present invention relates to a process for preparation of flameproof materials by agglomeration, lamination, gluing together, molding, or coating of supports or of organic or inorganic fillers. This invention is accomplished by using a complex formed from a phenolic resin of the type known to commerce under the name "Bakelite", modified in a particular way, plus a product of the polycondensation of monoethanolamine and phosphorous acid or derivatives thereof. The modified Bakelite, its preparation, the products of polycondensation of the monoethanolamine and phosphorous acid, their mode of preparation, as well as the different intermediate products and final materials obtained, and the processes for obtaining the mixtures are individually and collectively the objects of the present invention. The process of manufacture of polyethylamido phosphites consists fundamentally of causing a mole of ethanolamine to react with at least one mole of dialkyl or diaryl phosphite, eliminating 2 moles of alcohol or phenol; or, alternatively, causing at least two moles of ethanolamine to react with one mole of dialkyl or diaryl phosphite and eliminating 2 moles of alcohol or phenol and one mole of monoethanolamine, the elimination of the alcohol or of the phenol being carried out by transesterification at atmospheric pressure or under reduced pressure and at a temperature between 80 and 150°. The process of preparation of modified phenoplastic resin consists fundamentally of catalyzing the reaction by a base and eliminating all trace of free aldehyde at the end by reaction with urea, ammonia, or an organic amine base.

Guzzetta, Giuseppe and Ercoli, Ezio.
THERMOPLASTIC MATERIALS FROM A MIXTURE OF ISOTACTIC POLYPROPYLENE AND POLYBUTENE. [1960] 7p.
Order from LC or SLA mi$1.80, ph$1.80 60-14305

Trans. of Italian patent 566944, Cl. Co8f2, by Montecatini, appl. 5 Sep 56, approved 21 Sep 57.

Mixtures of isotactic polypropylene and polybutene in various proportions show improved physical and mechanical properties as compared to each single component. Thermoplastic materials obtained by the addition of isotactic polybutene (in proportions varying between 5 and 40%) to the isotactic polypropylene are characterized by a lower point of friability, better workability, a higher softening temperature and better tearing with respect to the latter component.

Konstantinov, A. A. and Vinogradov, G. V.
A TWO DIMENSIONAL METHOD OF INVESTIGATING THE VISCOUS PROPERTIES OF PLASTIC SUBSTANCES. [1960] [6]p. 6 refs. M 1063.
Order from LC or SLA mi$1.80, ph$1.80 60-13869

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1952, v. 86, no. 4, p. 749-752.

The present method is based on passing the specimen through the capillary with continuous variation in the conditions of flow. By recording the flow parameters and specifically determining the values of D, τ and η, it is possible with a single experiment, to determine the viscous properties of the material at the given temperature. Such experiments can be carried out with materials which display small thixotropic variations during the time of their single passage through the capillary (lubricants, etc.) The proposed method is based on the use of a capillary instrument employing calibrated springs which force the test material through the capillary. The test material is loaded into a cylindrical chamber and is forced into the capillary by means of a spring loaded calibrated rod. At the commencement of the experiment, when the spring is fully compressed, the flow of the test material through the capillary takes place at a high velocity gradient and high desplacement pressure. Gradually, as the force exerted by the spring becomes smaller, the velocity gradient and displacement pressure also decrease. During this process relationships arise firstly between the value of the spring deformation and the pressure transmitted to the capillary and secondly between the spring deformation velocity and the flow velocity of the test material. Thus the calibrated spring not only fulfils the function of a load system but can also be used to measure the flow pressure and velocity. (Extracted from the report)

Ranalli, F.
PROPERTIES OF THE MOPLEN PIPES. [1960] 15p.
Order from SLA mi$2.40, ph$3.30 60-14313

Trans. of Materie Plastiche (Italy) 1958 [v. 24, no. 12] p. 1109-1116.

Weprek, B.
DIMENSIONING OF INJECTION MOLDS FOR HARDENABLE PLASTICS (Bemessung der Spritzpressformen fur Hirtbare Kunststoffe). [1946] [11]p.
Order from SLA mi$2.40, ph$3.30 60-14412

Trans. of Kunststoffe (Germany) 1942, v. 32 [no. 7] p. 217-220.

Rubber and Elastomers

CROSS-LINKING AGENTS FOR LIQUID-PHASE PRODUCTION OF POLYURETHAN ELASTOMERS. [1960] 12p.
Order from RIS $20.00 RIS rept. 61037

Trans. of German patent application F 21694 (39b, 22/04) DAS 1 029 559, by Farbenfabriken Bayer A. G., Leverkusen, appl. 16 Nov 56, pub. 8 May 58.

A process is described for producing high molecular cross-linked synthetics during moulding from linear or primarily linear condensation or polymerization products having terminal groups with active hydrogen atoms and molecular weights above 1000, diisocyanate compounds and glycols. The process is characterized in that instead of the usual glycols phenylene-di-(β-hydroxyethylether) is added to (1) the free NCO-group-containing conversion products produced from the condensation or polymerization products with an excess of diisocyanates, (2) the active hydrogen-containing conversion products produced from the condensation or polymerization producers with a deficit of diisocyanates (final conversion is then carried out with additional diisocyanate), or (3) in excess to the conversion products produced from the condensation or polymerization products with an excess of diisocyanate (in which case final conversion is carried out with additional diisocyanate.

*KAUCHUK I REZINA (USSR) 1959 [VOL. 18] NO. 3, P. 1-64 (Raw and Vulcanized Rubber). [1960] 1v.
SOV-138-59-3-(1-16)/16.
Order from OTS $0.60, $3.50/6 mo. PB 141 057T-14
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Korobitskiy, A. P.
HOW TO OBTAIN SYNTHETIC RUBBER FROM ALCOHOL (Kak Poluchayut Sinteticheskiy Kauchuk iz Spirta). 6 Nov 59 [8]p. (2 figs. omitted).
AF 1256267.
Order from LC or SLA mi$1.80, ph$1.80 60-13185

Trans. of Neftyanik (USSR) 1959 [v. 4] no. 7, p. 29-31.

Roelig, H.
BUNA AS A STRUCTURAL COMPONENT IN MACHINES. [1960] 6p. (20 figs. omitted).
Order from SLA mi$1.80, ph$1.80 60-14658

Trans. of [Chemische Technik] (Germany) 1942, v. 14, no. 5, p. 91-94.

Shatolov, V. P., Kostyukov, N. M. and others.
HIGHLY PLASTIC OILFILLED BUTADIENE STYRENE RUBBER SKS-30AM (Vysokoplastichnyy Maslonapolnennyy Divinilstirol'nyy Kauchuk SKS-30AM) tr. by Vawryk. [1960] 6p. H-4016.
Order from OTS $0.50 60-21007

Trans. of *Kauchuk i Resina (USSR) 1959, v. 18, no. 1, p. 4-6.

In this article are set forth the results of research through the obtaining of oil filled Butadiene Styrene rubber of low temperature polymerization (+5 degrees), not demanding thermo oxidizing destruction during the remaking of it into rubber articles. (Author)

Wood and Paper

Corte, H.
THE SHORTENING OF CELLULOSIC FIBRES DURING BEATING. Mar 60, 11p. (13 figs. 24 equations omitted).
Order from SLA mi$2.40, ph$3.30 60-14549

Trans. of das Papier (West Germany) 1954, v. 8, no. 9/10, p. 163-172.

Fibre shortening is characterized by the probability with which a fibre of certain length is shortened in a given time. With the aid of this probability of shortening and starting from a given initial distribution in fibre length, the distribution after any given heating time can be calculated both for discontinuous and for continuous beating processes. Alternatively it is possible to calculate from experimentally determined distribution curves the probability of shortening and to determine particularly whether it is dependent on fibre length and whether it changes over a period of time. If the probability of shortening is independent of fibre length then fibre shortening occurs preferentially in the case of the most frequently occurring fibre lengths. This is the case with purely squeezing beater action. If on the other hand the probability of shortening is proportional to fibre length then shortening occurs to a greater extent in the case of longer fibers. This is the case in purely cutting beater action. The case in practice is usually intermediate. Regression equations for the moments of the fibre length distribution curve can be derived. From these simple limiting equations for changes in mean fibre length with time can be derived for purely squeezing and pure cutting beater action, such equations being experimentally verifiable. Herewith a first approximate solution of the problem is obtained. The method of solution is of necessity somewhat abstract. Our imagination can no longer follow the behavior of some milliards of fibres. Fortunately mathematical thinking capacity extends further than mere observation. The final solution itself is quite concrete and despite some simplifications made in the interest of obtaining clear equations should agree in essential aspects with conditions obtaining in practice. (Author)

Dymshchits, M. M. and Zhibareva, T. S.
THE USE OF WATER GLASS WITH ALUM FOR LAMINATING CONTAINER BOARD. Feb 60, 3p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-14291

Trans. of Bumazh[naya] Prom[yshlennost'] (USSR) 1959, v. 34, no. 8, p. 16-17.

Feeser, H.
THE DETERMINATION OF STARCH IN PAPER. Mar 60 [5]p. (2 tables omitted) 9 refs.
Order from SLA mi$1.80, ph$1.80 60-14518

Trans. of die Stärke (West Germany) 1958, v. 10, no. 2, p. 39-41.

A check was made on some analytical procedures for quantitatively determining starch in paper in order to assess their accuracy and the reproducibility of the values. The figures obtained varied considerably in all cases. Brief details are given of the shortcomings of the various methods of determination. The greatest difficulty arises in the separation of the starch. Based on the Tappi method a new method has been developed in accordance with which reproducible values of satisfactory accuracy are obtained. (Author)

MATHEMATICS

AKADEMIYA NAUK SSSR. IZVESTIYA. SERIYA MATEMATICHESKAYA, 1959, V. 23, NO. 5, P. 637-808 (News of the Academy of Sciences of the USSR. Mathematics Series). [1960] [12]p. SOV-38-23-5-(1-8)/8.
Order from OTS $0.50, $3.00/6 mo. PB 141 031T-12
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. MATEMATIKA (USSR) 1959, NO. 6, P. 3-234 [News of Institutes of Higher Learning. Mathematics]. [1960] [28]p. SOV/140-59-6-(1-29)/29.
Order from LC or SLA mi$2.70, ph$4.80 60-17006-6

Consists of abstracts in English.

JOURNAL OF APPLIED MATHEMATICS AND MECHANICS, 1959, VOL. 23, NO. 5, P. 1153-1426. Apr 60, 1v.
Order from PP $35.00/year

Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1959, v. 23, no. 5, p. 801-992.

MATEMATICHESKIY SBORNIK (USSR) 1959, VOL. 49, NO. 3, P. 233-352 [Mathematics Symposium]. [1960] [8]p. SOV/39-49-3-(1-7)/7.
Order from LC or SLA mi$1.80, ph$1.80 60-17000-3

Consists of abstracts in English.

*TEORIYA VEROYATNOSTEY I YEYE PRIMENENIYA (USSR) 1959, VOL. 4, NO. 4, P. 369-485. [Theory of Probability and its Applications]. [1960] [12]p. SOV/52-4-4-(1-13)/13.
Order from LC or SLA mi$2.40, ph$3.30 60-17020-4

Consists of abstracts in English.

UKRAINSKIY MATEMATICHESKIY ZHURNAL (USSR) 1959, VOL. 11, NO. 4, P. 347-463 [Ukrainian Mathematics Journal]. [1960] [13]p. SOV/41-11-4-(1-15)/15.
Order from LC or SLA mi$2.40, ph$3.30 60-17026-4

Consists of abstracts in English.

USPEKHI MATEMATICHESKIKH NAUK (USSR) 1959, VOL. 14, NO. 4, P. 3-253 (Progress of Mathematical Sciences). [1960] 1v. SOV-42-14-4-(1-27)/27.
Order from OTS $0.60, $3.50/year PB 141 036T-11
Foreign $0.85, $5.00/year

Consists of abstracts in English.

Fock, V. A.
ON THE CANONIC TRANSFORMATION-IN CLASSICAL AND QUANTUM MECHANICS. [1959] 5p.
Order from MDF $3.00 MDF F-121

Trans. of Leningrad U. Vestnik (USSR), 1959 [v. 14] no. 16, Ser[iya Fiziki i Khimiyi] no. 3, p. 67-70.

For systems having classical analogs, the unitary transformation of operators is the analog of the tangential transformation of classical mechanics. This analogy is traced in detail.

Ostrowski, Alexander.
ON THE CONTINUITY OF CHARACTERISTIC ROOTS IN THEIR DEPENDENCE OF THE MATRIX ELEMENTS, tr. by George C. Bump. Mathematical Miscellanea, 27. [1960] 5p. 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14227

Trans. of Deutsche Mathematiker-Vereinigung. Jahresbericht (West Germany) 1957, v. 60, p. 40-42.

Sagalovich, Yu. L.
ON GROUP INVARIANCE OF BOOLEAN FUNCTIONS. Mar 60 [8]p. 4 refs. AFCRC-TN-60-171; S-146.
Order from LC or SLA mi$1.80, ph$1.80 60-15855

Trans. of Usp[ekhi] Matem[aticheskikh] Nauk (USSR) 1959, v. 14, no. 6(90), p. 191-195.
Also available from MDF $3.00 as MDF S-146 [1959] 6p.

Yanovskaya, S. A., Adyan, S. I. and others.
MATHEMATICAL LOGIC AND THE FOUNDATIONS OF MATHEMATICS. 25 Mar 60, 195p. 262 refs. JPRS: 2329.
Order from OTS $3.00 60-11355

Trans. of mono. Matematik v SSSR za Sorok Let (Mathematics in the USSR in Forty Years) Moscow, 1959, v. 1, chaps. 1-4, p. 13-120.

The works of Soviet mathematicians on problems of mathematical logic are surveyed under the following chapter headings: (1) Certain problems of set theory, (2) Theory of algorithms and computable functions and operators, (3) Mathematical applications of the theory of algorithms, and (4) Logical and logical-mathematic calculi.

Computing Devices

ON THE URAL-I AND URAL-II SOVIET DIGITAL COMPUTERS: EXCERPTS, by M. B. Penington, B. J. Scott, and W. H. Ware. 9 Mar 60 [27]p. T-124.
Order from LC or SLA mi$2.70, ph$4.80 60-15680

Partial trans. (table of instructions) of mono. Digital Computing Machine URAL-II, pub. by the Penza Computing Machine Factory and partial trans. (table of contents, introduction, and a table from mono. Programming for Digital Computing Machine - URAL-I, Moscow, 1957.

Nazarov, A. A., Petrov, Yu. V., and Zhdanov, A. A.
ELECTROCHEMICAL STORAGE ELEMENT. 22 Mar 60, 6p. JPRS: 2380.
Order from OTS $0.50 60-11400

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Priborostroyeniye (USSR) 1958, no. 6, p. 50-53.

This element is an electrochemical cell, consisting of three electrodes: one zinc and two of the same metal -- working and standard, which are plates of refined copper amalgamated with mercury. The passage of a current pulse causes zinc to be deposited on the working electrode and to change the potential of this electrode, while the standard electrode has a fixed stable potential. The working and the zinc electrodes are in one vessel, the standard electrode is in another one, and both vessels are connected by means of an electrolytic key. The electrolyte used is a saturated solution of zinc sulphate with a small amount of mercurous sulphate added. Such memory elements can be used successfully in relay computing machines and special machines which do not require high working speeds.

Kaluzhnin, L. A.
ALGORITHMIZATION OF MATHEMATICAL PROBLEMS. 5 Apr 60, 25p. 8 refs. JPRS: 2424.
Order from OTS $0.75 60-11428

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 51-68.

Shura-Bura, M. R.
PROGRAMMING. 1 Apr 60, 13p. 4 refs. JPRS: 2431.
Order from OTS $0.50 60-11434

Trans. of mono. Matematika v SSSR za Sorok Let 1917-1957, Moscow, 1959, v. 1, p. 879-886. Another translation is available from LC or SLA mi$2.40, ph$3.30 as 59-22732, AFCRC-TN-59-782, Oct 59, 12p.

The research of Soviet mathematicians on programming problems is reviewed.

MECHANICS

Novoselov, V. S.
INVESTIGATION OF THE STABILITY OF THE VERTICAL POSITION OF A GYROSCOPE OF VARIABLE MASS. 5 Apr 60, 6 refs. JPRS: 2305.
Order from OTS $0.50 60-11468

Trans. of Leningrad U. Vestnik, 1959 [v. 14] no. 19. Ser[iya] Mat[ematiki], Mekh[aniki] i Astron[omii] no. 4, p. 121-129.

Palm, Joachim and Thomas, Klaus.
COMPUTATION OF CURVED FLEXIBLE SPRINGS. Feb 60, 27p. 10 refs.
Order from SLA mi$2.70, ph$4.80 60-14551

Trans. of V[erein] D[eutscher] I[ngenieure]. Zeitschrift (West Germany) 1959, v. 101, no. 8, p. 301-308.

The customary simplified computation of curved flexible springs on the basis of the extended length of the spring, without regard for the curvature influence frequently leads to useless results. Computations show that this simplified method can be used however, if the curvature influence is taken into consideration with the help of a correction factor. Experiments confirm the usefulness of the simple formulas for the computation of such springs. (Author)

Vasilenko, A. A., Savich, P. V., and Ivakhnin, I. I.
DETERMINING SOIL DENSITY BY RADIOACTIVE ISOTOPES [AND] STABILITY OF A CONIC SHELL OF CIRCULAR CROSS SECTION UNDER THE SIMULTANEOUS ACTION OF AXIAL COMPRESSION AND NORMAL EXTERNAL PRESSURE (Viznachennya Shchil'nosti Gruntiv za Dopomogoyu Radioaktivnikh Izotopiv) [Opredeleniye Plotnosti Gruntov s Pomoshch'yu Radioaktivnykh Izotopov] [and] (Stiykist' Konichnoy Obolonki Kruglogo Pererizu pri Spil'niy dii Os'ovogo Stisnennya i Zovnishn'ogo Normal'nogo Tisku) [Ustoychivost' Konicheskoy Obolochki Krugovogo Secheniya pri Sovmestnom Deystvii Osevogo Szhatiya i Vneshnego Normal'nogo Davleniya] tr. by Peter Melnyk. [1960] [10]p. H 2481 A.
Order from LC or SLA mi$1.80, ph$1.80 60-13005

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1958, no. 4, p. 372-380.
Determining soil density with radioactive isotopes, by Vasilenko and Savich: The densities of sand, clay, and black earth were determined by radiation from Co^{60} isotopes with an intensity of about 1 millicurie. The parallel beam of monochromatic gamma rays was absorbed by the soils according to the exponential law $J_h = J_o e^{-\mu h}$, where J_h is the intensity of radiation after passing an h-thick layer of soil, J_o is the intensity of radiation without an absorber, and μ is the linear coefficient of absorption. Stability of a conic shell..., by Ivakhnin: The Ritz method is simplified and used to derive a formula for the critical load at constant external pressure. The formula is reduced, for the case of a cylindrical shell, to the formula of Timoshenko. (See also 59-18032)

Vlasov, V. Z.
THE THEORY OF MOMENTLESS SHELLS OF REVOLUTION. Apr 60, 36p. 10 refs. Technical trans. F-6.
Order from OTS $0.75 60-21429

Trans. of A[kademiya] N[auk] SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya] 1955, no. 5, p. 55-84.

General homogeneous solutions are presented for the equations of the membrane theory of shells of revolution of both positive and negative Gaussian curvature. Solutions are obtained of a number of boundary value problems of edge-loaded shells and compound shells loaded at their junctures, including a compound shell made of conical segments with stiffeners at the junctures. (NASA abstract)

Vorovich, I. I.
STATISTICAL METHODS IN THE THEORY OF SHELL STABILITY. [1959] 10p. 7 refs.
Order from MDF $5.50 MDF V-141

Trans. of *Prikl[adnaya] Matem[atika] i Mekh[anika] (USSR) 1959, v. 23, no. 5, p. 885-892.

Yakovlevskiy, O. V.
CONCERNING THE THICKNESS OF THE TURBULENT MIXING ZONE BETWEEN TWO GAS STREAMS OF DIFFERENT VELOCITY AND DENSITY (O Tolshchine Zony Turbulentnogo Peremeshivaniya na Granitse Dvukh Potokov Gaza Raznoy Skorosti i Plotnosti). [1960] [5]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-13252

Trans. of A[kademiya] N[auk] SSSR. Otd[eleniye] Tekh[nicheskikh] Nauk. Izvestiya, 1958, no. 10, p. 153-155.
Another translation is available from ATS $6.00 as ATS-24M38R [1959] 3p.

The effect of heating and high discharge velocity on the angular expansion coefficient b^* is shown to be described by the parameter r, and to be approximately determined by

$$b^* = c\,\frac{1+r}{2}\,\frac{1-m}{1+m}$$

and

$$b^*_{m=0} = 0.27\,\frac{1+r}{2}$$

Aerodynamics and Pneumatics

Bogacheva, A. V.
LAMINAR HIGH-SPEED AIR FLOW IN FLAT CAPILLARIES. [1960] 10p. 5 refs.
Order from MDF $6.00 MDF B-153

Trans. of mono. Sistemy, Ustroystva i Elementy Pnevmo- i Gidroavtomatiki, Moscow, 1959, p. 194-204.

Experiments showed that the dependence

$$\xi \mathrm{Re} = f(\lambda,\ b/h)$$

can be used in determining the resistance coefficient of flat capillaries. Here $\xi = \Delta P/[\gamma w^2/2g)(l/h)]$ is the resistance coefficient; $\mathrm{Re} = G/gb\mu[1 + (h/b)]$; $\lambda = w/a_*$ is the reduced velocity; b is the channel width; h is the channel height; $a_* = \sqrt{\frac{2k}{k+1}\,gRT_{ol}}$ is the critical air velocity; $w = G/hb\gamma$ is the average air velocity; G is the air discharge; $\gamma = P/RT$ is the specific gravity of air; $k = c_p/c_v$ is the adiabatic index; R is the gas constant; T_{ol} is the temperature in the chamber; P is the average static pressure over the section of the channel under consideration; and T the air temperature in the channel. The formula

$$\mu_d = a\,u_{di}$$

can be used to determine the discharge coefficient μ_d for compressible gas flow along flat capillary channels. In this case the coefficient a, which takes compressibility into account, is defined by the dependence $a = a(\beta, \mu_{di})$; the discharge coefficient of an incompressible fluid $\mu_{di} = 1/\sqrt{a + \sum \xi_m + \xi\,(l/h)}$, where ξ_m is the coefficient of local resistance and a is a coefficient of kinetic energy flux; and β is the ratio of the pressures P_{o2}/P_{o1}.

Cap, Ferdinand.
THE APPLICATION OF THE GROEBNER METHOD IN THE SOLUTION OF DIFFERENTIAL EQUATIONS OF THE ASTRONAUTICAL n-BODY PROBLEM, tr. by R. E. Schwartz. Dec 59, 7p. 1 ref.
Order from SLA mi$1.80, ph$1.80 60-14293

Trans. of a German language preprint of mono. (paper) presented at Annual Congress of the International Astronautics Federation (no. 9) Amsterdam, Aug 58, 5p.

By means of the Lie series, W. Groebner succeeded in discovering a new and very effective method for integration of differential equations. This method consists essentially of forming an operator by means of the differential equations relative to the differential equation system; by means of this operator the solution can be attained as an embodiment of the boundary conditions. This new procedure is discussed in detail and its application to the n-body problem of Astronomy and Astronautics is stated including the complete solution of this problem. (Author)

Cicala, Placido.
OPTIMUM AIRPLANE FLIGHT PATHS (le Evoluzioni Ottime di un Aereo). Oct 59, 13p. 4 refs. Technical trans. F-4.
Order from OTS $0.50 60-21000

Trans. of Accademia delle Scienze di Torino. [Classe di Scienze Fisiche, Matematiche e Naturali] Atti (Italy) 1955, v. 89, May, p. 350-358.

The generalized equations are discussed which pertain to an airplane executing its flight path in a single vertical plane, under a sequence of stipulations specifying the nature of the local optima which are distinctly different in character along successive portions of this path. The aerodynamic and propulsive characteristics of the airplane are allowed to be specified with complete generality. (NASA abstract)

Frössling, Nils.
EVAPORATION, HEAT TRANSFER AND VELOCITY DISTRIBUTION IN TWO-DIMENSIONAL AND ROTATIONALLY SYMMETRICAL LAMINAR BOUNDARY-LAYER FLOW (Verdunstung, Wärmeübergang und Geschwindigkeitsverteilung bei Zweidimensionaler und Rotationssymmetrischer Laminarer Grenzschichtströmung) tr. by Mary L. Mahler. Feb 58, 37p. 19 refs. AD-154 462.
Order from NASA NACA TM-1432

Trans. from Lund U. Årsskrift. [Afdelning 2] (Sweden) [1940] N. F. v. 36, no. 4 (also as K. Fysiografiska Sallskapet [Lund]. Handlingar (Sweden) 1940, N. F. v. 51, no. 4.

A theoretical investigation is made of the boundary-layer flow over two-dimensional bodies and over bodies of revolution. The evaporation, the heat transfer, and the boundary-layer velocity profiles are calculated by power-series developments with respect to distance along the surface. The coefficient functions that occur in the series developments were chosen so that they are valid for all pressure distributions; some of these coefficient functions were calculated numerically. Methods for the determination of the errors caused by breaking off the series are briefly treated. Methods of proceeding further along the surface are discussed. It is shown, for large Prandtl numbers, that the Nusselt number is exactly proportional to the cube root of the Prandtl number. Finally, approximate methods of calculation are discussed. (Author)

METALLURGY

*METALLOVEDENIYE I TERMICHESKAYA OBRABOTKA METALLOV (USSR) 1960, NO. 1, P. 2-64 (Metallography and Heat Treatment of Metals). [1960] 1v. SOV-129-60-1(1-22)/22.
Order from OTS $0. 60, $3. 50/6 mo. PB 141 131T-18
Foreign $0. 85, $5. 00/6 mo.

Consists of abstracts in English

*REFERATIVNYY ZHURNAL. METALLURGIYA (USSR) 1959, NO. 7, P. 54-319, ABSTRACTS 14586-16482 [Journal of Abstracts. Metallurgy]. [1960] [36]p. SOV/137-59-7-(14586-16482).
Order from LC or SLA mi$3.00, ph$6.30 60-17022-7

Consists of abstracts in English.

SOVIET HIGH-TEMPERATURE METALLURGY: SELECTED TRANSLATIONS. 11 Jan 60, 105p. 25 refs. JPRS: 2104-N.
Order from OTS $2. 50 60-11155

Contents:
Effect of chemical composition, initial structure and testing conditions on hot brittleness of steel, by G. I. Pogodin-Alekseyev and M. M. Fetisova. Trans. of mono. Sovremennyye Splavy i Ikh Termicheskaya Obrabotka (Modern Alloys and Their Heat Treatment) Moscow, 1958, p. 23-29.
High-temperature gas turbine steels and alloys, by F. F. Khimushin. Trans. of mono. Sovremennyye Splavy i Ikh Termicheskaya Obrabotka, Moscow, 1958, p. 216-241.
Changes in the surface layer of a high-temperature alloy during mechanical working and heating in an oxidizing medium, by V. G. Vorob'yev. Trans. of Sovremennyye Splavy i Ikh Termicheskaya Obrabotka, Moscow, 1958, p. 242-253.
Status and perspectives in the development of spot and roller welding of light alloy weldments, by B. D. Orlov and P. L. Chukoshnikov. Trans. of *Svarochnoye Proizvodstvo (USSR) 1959, no. 7, p. 16-19.
Carbides, silicides, borides, nitrides and sulfides of rare metals and their application in a new technology, by G. V. Samsonov. Trans. of Akademiya Nauk URSR, Kiev. Visnyk, 1959 [v. 30] no. 6, p. 27-37.

U. S. S. R. ABSTRACTS OF METALLURGY; PART A, 1959, NO. 1. Mar 60, 69p.
Order from PP $25. 00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1959, no. 1.

*ZAVODSKAYA LABORATORIYA (USSR) 1959, V. 25, NO. 7, P. 771-896 (Plant Laboratory). [1960] 1v. SOV-32-25-7-(1-50)/50.
Order from OTS $1. 00, $5. 50/6 mo. PB 141 027T-21
Foreign $1. 25, $7. 00/6 mo.

Consists of abstracts in English.

Chou, Chih-hung, Tsung, K'uo, and Ching, Ling-chao.
GROWTH OF THE PHYSICS OF METALS AND PHYSICAL METALLOGRAPHY IN THE CHINESE PEOPLE'S REPUBLIC FOR 10 YEARS. 31 Mar 60, 13p. 70 refs. JPRS: 2425.
Order from OTS $0. 50 60-11429

Trans. of Fizika Metallov i Metallovedeniye (USSR) 1959, v. 8, no. 6, p. 820-828.

The survey consists of 4 sections: (1) physics of strength and plastic flow, (2) internal friction and diffusion, (3) phase transitions, and (4) theory of metals and alloys.

Elyutin, V. P. and others.
PRODUCTION OF SILICOMANGANESE. [1960] 1400 words.
Order from HB $3. 90 HB-4777

Trans. of mono. [Proizvodstvo Ferrosplavov, Moscow] 1957, chap. 3, sect. 5, p. 124-128.

Grades of silicomanganese produced in the USSR and their specific applications: (a) 20% Si; (b) 17-19. 9% Si, (c) 14-16. 9% Si. Best method of producing the standard SiMn grades with under 0. 20% P and under 0. 10% P, resp. Particulars on composition of resulting slag. Production of high-silicon (35-38% Si) silicomanganese; underlying theory. Consumption of materials and electric power. Data on economics of production of SiMn from slag obtained in the production of ferromanganese. (HB abstract)

Kornilov, I. I.
INFLUENCE OF TEMPERATURE ON THE SOFTENING OF METALLIC ALLOYS (Vliyanya Temperatury na Razuprochneniye Metallicheskikh Splavov). [1960] 10p. 7 refs.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14515

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 106, no. 5, p. 845-847.

Koval'chenko, M. S. and Samsonov, G. V.
SOME RELATIONSHIPS IN THE HOT PRESSING OF POWDERS OF REFRACTORY COMPOUNDS. [1960] 1600 words.
Order from HB $4.50 HB-4799

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Met[allurgiya] i Topl[ivo] 1959, no. 4, p. 144-147.

Study of behavior of powders of carbides of Ti and W, and borides of Ti, Zr, and Mo in hot pressing. Effect of pressure applied upon density of TiC compacts. Linear shrinkage of titanium carbide and zirconium boride powders during hot pressing as function of time under pressure. Density of hot pressed TiC powder as affected by sintering time and temperature. Density and residual porosity of WC and TiC compacts as function of time under load and during cooling after load removal. Effect of sintering temperature on density of Mo_2B_5 compacts. Density and porosity of TiB_2 compacts as function of time under load and unloading temp., resp. Mechanisms accounting for the first and the (slower) second stages of densification. (HB abstract)

Portnoy, K. I. and Samsonov, G. V.
PROPERTIES OF TERNARY ALLOYS OF TITANIUM, CHROMIUM AND ZIRCONIUM DIBORIDES (Svoystva Troynykh Splavov Diboridov Titana, Khroma i Tsirkoniya). Aug 58 [4]p. 6 refs. C. T. S. no. 537.
Order from LC or SLA mi$1.80, ph$1.80 60-15597

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 116, no. 6, p. 976-978.

The solubility of ZrB_2 in $(Ti, Cr)B_2$ amounts to ca. 40 mole per cent, whereas that of $(Ti, Cr)B_2$ in ZrB_2 - less than 10 mole per cent. The interval of solubility of ZrB_2 in CrB_2 increases when ZrB_2 is dissolved in the bonary [double] boride $(Ti, Cr)B_2$ with whose one component (TiB_2) the zirconium boride forms a continuous series of solid solutions. In the single-phase region of the solid solution of ZrB_2 in $(Ti, Cr)B_2$, in the case of specimens hardened from 1900°C, there exists a micro-hardness maximum of 3900 kg/mm^2 (at 20 mole per cent of ZrB_2) and a maximum of electrical resistance (216 $\mu\Omega$/cm at 10 mole per cent of ZrB_2). (Author)

Sventitskiy, N. S. and Taganov, K. I.
ON SPECTROSCOPIC INVESTIGATIONS OF THE ELECTRICAL EROSION PROPERTIES OF OXYGEN-CONTAINING TITANIUM. [1959] 2p.
Order from MDF $2.00 MDF S-150

Trans. of *A[kademiya] N[auk] SSSR. Izvestiya. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1096-1097.

Trebelev, A. M.
CRYOLITE, AN EFFECTIVE FLUX IN BRASS SMELTING (Kriolit: Effektivnyy Flyus pro Plavke Latuni) tr. by E. C. B. P. [1960] 1p. H 6054 E.
Order from OTS $0.50 60-21206

Trans. of Liteynoye Proizvodstvo (USSR) 1959, Jan, p. 48.

Ferrous Metals

Bornatskiy, I. I., Alferov, K. S., and Prilepskiy, V. I.
DEOXIDATION OF RIMMING STEEL IN LADLE WITH FERROMANGANESE. [1960] 4100 words.
Order from HB $9.75 HB-4778

Trans. of Stal' (USSR) 1956, v. 16, no. 11, p. 977-983.

Plant-scale study of merits of deoxidation of rimming steel with ferromanganese in ladle (200 heats) instead of furnace (350 heats) from 185 and 370 m. ton capacity all-basic open-hearth furnaces. Manganese melting loss as affected by carbon content of steel; FeO in slag; CaO/SiO_2 ratio before deoxidation; and length of deoxidizing period. Uniformity of distribution of Mn in steel. Variation of Mn content during pouring of trial heats. Segregation of C, Mn, and S in semifinished and finished steel. Principal characteristics of ingot structures from ladle vs. furnace-deoxidized heats. Nonmetallic inclusions. Mechanical properties; sampling technique. Importance of proper tapping temperature and of [Mn]/[C] ratio; boiling action in mold; amount of top discard. Recommended lump sizes of FeMn used in ladle deoxidation and best silicon content if the steel is to be bottom poured. Savings on ferromanganese. (HB abstract)

Geller, Yu. A. and Kachanov, V. S.
STRUCTURE, PROPERTIES AND HEAT TREATMENT OF NEW HIGH-SPEED STEELS. [1960] 4700 words.
Order from HB $8.90 HB-4427

Trans. of Metallovedeniye i [Termicheskaya] Obra[botka] Met[allov] (USSR) 1958, no. 11, p. 6-19.

Detailed study of new HS steels with increased cobalt and/or vanadium contents produced on industrial scale, for heat treatment conditions ensuring the best combination of properties, 18-4-1 steel serving as reference. C/V ratio needed for good mechanical properties. Effect of quenching temperature on quantity of retained austenite and hardness of steels studied. Effect of cobalt on amount of retained austenite. Mechanical properties and red hardness as functions of quenching temperature. Effect of quenching temperature and time on as-quenched hardness. Procedure adopted for testing the steels for red hardness. Data on red hardness of all steels studied. Effect of conditions of tempering; change in mechanical properties with temperature and number of temperings. Evaluation of results; recommended applications of the new high-Co, high-V, and high Co + V grades. (HB abstract)

Gnuchev, S. M. and others.
PRODUCTION OF CONSTRUCTIONAL STEELS IN ARC FURNACE WITH OXYGEN INJECTION. [1960] 2700 words.
Order from HB $6.25 HB-4113

Trans. of Stal' (USSR) 1957, v. 17, no. 3, p. 228-232.

Results of a study on complete replacement of ore by oxygen during oxidizing stage, and increased lime additions during the meltdown stage upon quality of constructional alloy steels and on furnace lining life. Changes in oxygen, hydrogen, and nitrogen contents of bath during oxygen injection and the reducing stage. Sampling device for hydrogen determination. Quality of steel produced with oxygen injection: phosphorus content; inclusion and gas contents. Data on savings in electric power and on consumption of oxygen. (HB abstract)

Grünberg, K., Schleicher, W., and Kunz, R.
COOLING WITH ORE IN THE OXYGEN TOP BLOWING LD PROCESS. [1960] 2200 words.
Order from HB $5.65 HB-4800

Trans. of Stahl und Eisen (West Germany) 1960, v. 80, no. 5, p. 277-281.

Report on results obtained with use of ore instead of scrap as coolant in routine production of 180,000 tons of 0.04-0.70% carbon steels. Metallurgical studies underlying the construction of carbon, silicon, manganese, and phosphorus drop and slag composition diagrams depicting the progress of heats of rimming deep-drawing and killed tube steel part of them ore cooled and part, scrap cooled. Furnace practice. Comparision of oxygen, nitrogen, and hydrogen contents of ore-cooled LD steel with basic open-hearth steel, on the one hand, and scrap-cooled LD steel, on the other. Special cleanness of ore-cooled LD steel. (HB abstract)

Kao, Yun-sheng.
SEVEN YEARS OF THE PEKING INSTITUTE OF FERROUS METALLURGY. 30 Mar 60, 8p.
JPRS: 2456.
Order from OTS $0.50 60-11454

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Chernaya Metallurgiya (USSR) 1959, no. 9, p. 189-194.

Kramnik, T. A.
WORKS METHOD FOR DETERMINATION OF REDUCIBILITY OF SINTER FOR BLAST FURNACE. [1960] 2800 words.
Order from HB $6.85 HB-4731

Trans. of Stal' (USSR) 1958, v. 18, Blast Furnace Production Suppl. p. 16-25.

Report on a standard rapid plant method that is simple and accurate, of testing sinter for reducibility. Description of apparatus used, essentially consisting of a vertical furnace fitted with thermocouples; advantages of hydrogen serving as reducing agent. Effect of velocity of hydrogen flow on rate of reduction. Effect of temperature, sample weight, and particle size of sample on per cent reduction. Data on exact conditions under which sinter is routine tested for reducibility; time required for one determination: 30-40 minutes. (HB abstract)

Lukashevich-Duvanova, Yu. T. and Urazova, V. A.
NATURE OF CARBIDE PHASE IN TITANIUM-ALLOYED STEELS. [1960] 1800 words.
Order from HB $4.80 HB-4785

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Met[allurgiya i] Topl[ivo] 1959, no. 5, p. 127-130.

Study of conditions under which pure titanium carbide is formed in carbon steel (0.07-0.25% C); and also solutions of titanium carbide with nitrides, sulfides and oxides of titanium. Experimental procedure. Results of phase analysis of nonmetallic inclusions in 0.18-1.80% Ti steels. Relationship between quantity of Ti present and amounts of iron carbide and titanium carbide. Solvent power of iron carbide for titanium carbide. Nature of titanium oxide inclusions and titanium carbosulfide inclusions.

Moldavskiy, O. D. and Pronov, A.
EFFECT OF PRIMARY STRUCTURE OF (LOW CARBON) STEEL ON SUSCEPTIBILITY TO HOT TEARING. [1960] 2800 words.
Order from HB $6.90 HB-4756

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Met[allurgiya] i Topl[ivo] 1959, no. 3, p. 47-51.

Experimental procedure. Particulars on circuit diagram of device for measuring the mechanical strength of steel during solidification. Mold for measuring shrinkage. Relationship between susceptibility of low-carbon steel to hot tearing and its aluminum, silicon, or chromium contents. Importance of effect of primary structure, especially when in form of a single-phase solid solution of an element with iron, upon the strength of solidifying steel. Role played by the plasticity of freezing steel upon its resistance to hot tearing. (HB abstract)

Schürmann, E., Heynert, G., and Beer, H.
REDUCTION EXPERIMENTS ON IRON ORES AND SINTERS, WITH SPECIAL CONSIDERATION OF CARBON DEPOSITION AND EXPULSION OF CARBON DIOXIDE AND COMBINED WATER. [1960] 7000 words.
Order from HB $13.50 HB-4663

Trans. of Stahl und Eisen (West Germany) 1959, v. 79, no. 13, p. 917-926.

Demonstration of possibility of measuring the effect of the Boudouard reaction and of the decomposition of the combined water and the carbonates upon the iron oxide reduction, based on new experimental data. Experimental procedure and results obtained. Evaluation of results for sinters and various iron ores, including Swedish ores and Venezuela ores. Interpretation of progress of reduction on basis of reduction equilibria and oxygen-removal curves. Usefulness of a comparison of the values of the CO_2/CO ratio with those of known reduction equilibria for pure iron oxides. (HB abstract)

Smolyarenko, D. A. and Kaplan, A. S.
OUTLINE OF THE STANDARD "ALLOY STEEL FOR STRUCTURAL AND MACHINE BUILDING PURPOSES; DESIGNATIONS AND TECHNICAL REQUIREMENTS". 25 Mar 60, 11p. JPRS: 2386.
Order from OTS $0.50 60-11405

Trans. of Standartizatsiya (USSR) 1959, no. 8, p. 41-48.

The standard was designed to replace GOST 4543-48. The chief criterion for classifying the groups of graded steel listed in the standard is the mechanical properties which the steel acquires after a specific thermal processing. A total of 83 grades of steel are proposed.

Tarasov, A. M. and Semenchenko, M. R.
ON THE POSSIBILITY OF RAISING THE PACK CARBURIZING TEMPERATURE (FOR AUTO PARTS OF STEEL) TO 980°C (1795°F). [1960] 1400 words.
Order from HB $3.80 HB-4356

Trans. of Metallov[edeniye i Termicheskaya] Obra-[botka] Met[allov] (USSR) 1958, no. 9, p. 39-42.

Exploration of possibility of increasing heat-treatment shop production by raising the carburizing temperature in solid carburizers from the present 1670°F (910°C to 1795°F (980°F). Quality of case obtained: carbon content and distribution mechanical properties of various auto parts (50,000 in number) carburized at 1795°F; data on distortion during the heat treatment. Time savings: 40-50% when pack carburizing at 1795°F and 15% when carburizing at 1740°F, compared with carburizing at 1670°F. (HB abstract)

Nonferrous (except light) Metals

TSVETNYYE METALLY (USSR) 1959 [V. 32] NO. 10, P. 1-94 (Nonferrous Metals). [1960] 1v. SOV-136-59-10-(1-18)/18.
Order from OTS $0.60, $3.50/6 mo. PB 141 139T-20
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Urazov, G. G., Lovchikov, V. S., and Lipshits, B. M.
PURIFYING LEAD FROM ARSENIC, TIN, AND ANTIMONY WITH ALKALI MELTS (Refinirovaniye Svintsa ot Mysh'yaka, Olova i Sur'mi Zhidkimi Shchelochnymi Plavami). Mar 60 [10]p. 1 ref. RTS 1415.
Order from LC or SLA mi$1.80, ph$1.80 60-15888

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Tsvetnaya Metallurgiya (USSR) 1958, v. 1, no. 2, p. 77-83.

Pilot industrial tests showed that lead may be freed from As, Sn and Sb with molten alkali at 420 to 450°C without loss of Pb, Bi or noble metals. The alkali process removes some to the Te. The time needed to oxidize the impurities depends on the nitrate feed rate and on the impurity content. The amounts of the reagents needed can be found from the impurity contents in accordance with the formulas $NaOH = 2.5Sb + 4.0Sn + 1.6As$; $NaNO_3 = 0.62Sb + 0.52Sn + 0.4As$. The amount of salt may vary from 10-20% of the weight of the NaOH as a function of the impurity content. It is also quite possible to omit the salt, in which case the melt is more active and the impurities are oxidized more rapidly. (Author)

Structural Metallurgy and Corrosion

Aliyev, K. A.
PROTECTION OF URBAN UNDERGROUND GAS PIPES AGAINST CORROSION (Zashchita Gorodskikh Podzemnykh Gazoprovodov ot Korrozii). Dec 59 [5]p. RTS no. 1131.
Order from LC or SLA mi$1.80, ph$1.80 60-13461

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 2, p. 15-16.

An analysis of prospecting results (sic) of various structures has shown that covering the pipes with high specific-resistance soil is one of the most effective methods of protection of urban underground networks. Effective isolation, without application of cathodic protection, may lead to very extensive local corrosion due to the action of stray currents. For the electrochemical protection of urban gas pipes the drain protection should have the widest application. Outside the stray current zone, electrical protection has many advantages. The application of cathodic protection is associated with the danger of additional stray currents arising. Therefore it can be recommended only for districts in which the underground structures are not tightly packed. Cathodic protection can give a positive solution only when the networks are sectioned and divided, while under repair. The division of the networks acquires a particular importance for low pressure gas pipes where gas networks and other underground communications meet. A correct and effective functioning of the protection of underground urban gas pipes demands good organization of the working of these installations. The discovery of a corrosive condition is made possible by prospecting, gas analysis and measurements carried out systematically by specially selected personnel. The effective protection against corrosion of urban gas pipes is an essential measure for ensuring accident- and danger-free service from these networks. (Extracted from the report)

Bungardt, Walter, and Schaitberger, Gunther.
THE STRESS CORROSION BEHAVIOR OF SEVERAL ALUMINUM-ZINC-MAGNESIUM ALLOYS AFTER ARTIFICIAL AGING. [1960] 31p. 23 refs.
Order from SLA mi$3.00, ph$6.30 60-14360

Trans. of Zeitschrift für Metallkunde (Germany) 1943, v. 35, no. 2, p. 47-55.

The stress corrosion behavior after age-hardening at 80 and 130°C for prolonged periods was determined on various aluminum-zinc-magnesium alloys of the equilibrium region T with 4.5% Zn and 3.5% Mg, as well as the quasi-binary section Al-$MgZn_2$ with 6 to 8% $MgZn_2$ and further small additions of vanadium and copper. For the first group of alloys the susceptibility to stress corrosion generally increased with increasing aging period, yet an improvement was noted for second group. In the case of alloys with 4.5% Zn and 3.5% Mg the additions of vanadium and copper are not important for the water-quenched and artificially aged condition if they are aged at temperatures above 100°C. At lower temperatures, for example at 80°, these additions are associated with an appreciable improvement in the stress corrosion behavior, according to weathering tests. In the group of alloys with 6 to 8% $MgZn_2$ such additions definitely promote the development of stress corrosion resistant conditions after natural age-hardening as well as artificial aging. The difference in the stress corrosion behavior of the two groups of alloys on artificial aging is attributed to the differences in structure which develop on disintegration of the solid solution. (Author)

Golik, V. R., Sirenko, G. A., and Khotkevich, V. I.
X-RAY DIFFRACTION STUDY OF THE DISTORTION OF THE CRYSTAL LATTICE OF METALS DEFORMED AT LOW TEMPERATURES. [1960] 6p. 15 refs.
Order from MDF $4.00 MDF G-174

Trans. of *Fiz[ika] Met[allov] i Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 235-239.

Microdeformations and the magnitude of coherent scattering regions in Fe, Al and Pb deformed at room temperature and at 77° K are investigated by the method of harmonic analysis. It is shown that the most intense deviation of the microdeformation and breaking up of the coherent scattering regions occur at the very beginning of the deformation. A drop in the deformation temperature leads to a further increase in the microdeformations and a decrease in the coherent scattering regions. The microstresses which arise are compared with the fluidity limit determined at the appropriate temperatures. An estimate is given of the elastic energy of the residual microdistortions. (Author)

Ivanov, S. A.
ON THE POSSIBILITY OF HYDROGEN ABSORPTION BY THE METAL IN THE CATHODIC PROTECTION OF STEEL STRUCTURES IN SEA WATER (O Vozmoshnosti Navodorozhivanya Metalla pri Katodnoy Zashchite Stal'nykh Konstruktsii v Morskoy Vode). Dec 59 [5]p. RTS no. 1129.
Order from LC or SLA mi$1.80 ph$1.80 60-13460

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma [sect. ?] p. 53-54.

Investigations showed that hydrogen diffuses into the metal subject to cathodic protection in solutions of sulphuric acid. In sea water, diffusion of hydrogen into the metal did not occur at the usual protective current densities as recommended for cathodic protection at sea. At very high intensities (several tens of times greater than those usually recommended for protection) hydrogen does penetrate into the metal. This is explained by the fact that in cathodic protection in sea water, a salt crust forms on the surface of the protected object which shields the metal from hydrogen enrichment. The salt crust breaks up under very high current densities and vigorous liberation of hydrogen, and sometimes even scales off and does not impede the diffusion of hydrogen into the surface layer of the metal. Under the normal conditions of cathodic protection in sea water there is no cause for apprehension about hydrogen absorption by the metal and, consequently, about a change in its mechanical properties. No brittleness of the metal was observed even when the specimens were immersed for very long periods in sulphuric acid solutions when saturation with hydrogen certainly occurs. (Extracted from the report)

Klark, G. B., Mikhaylovskaya, M. I., and Tomashov, N. D.
ELECTROCHEMICAL INVESTIGATION OF THE CORROSION OF METALS IN A HUMID ATMOSPHERE WITH DIFFERENT SULPHUR DIOXIDE CONTENTS (Elektrokhimicheskoye Issledovaniye Korrozii Metallov vo Vlazhnoy Atmosfere s Razlichnym Soderzhaniyem Sernistogogaza). Dec 59 [5]p. RTS no. 1127.
Order from LC or SLA mi$1.80, ph$1.80 60-13428

Trans. of preprint of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 3, p. 38-39.

Kroll, W.
HOT-ROLLING OF MANGANESE AND ITS DEFORMABLE ALLOYS. [1960] 7p. (1 fig. 2 tables omitted).
Order from SLA mi$1.80, ph$1.80 60-14620

Trans. of Z[eitschrift] f[ür] Metallkunde (Germany) 1939 [v. 31, no. 1] p. 20-23.

Kudryavtsev, N. T. and Tyutina, K. M.
INCREASING THE CORROSION RESISTANCE OF ELECTROLYTIC COATINGS BY SURFACE TREATMENT AND ALLOYING THE ZINC WITH OTHER METALS (Povysheniye Korrozionnoy Stoykosti Elektroliticheskikh Tsinkovykh Pokrytii putem Poverkhnostnoy Obrabotki i Legirovaniya Tsinka Drugimi Metallami). Dec 59 [5]p. RTS no. 1137.
Order from LC or SLA mi$1.80, ph$1.80 60-13464

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 5, p. 47-48.

Moroz, I. I. and Kudryavtsev, N. T.
THE INFLUENCE OF ELECTROPLATING WITH ZINC ON THE MECHANICAL PROPERTIES OF STEEL (Vliyaniye Elektroliticheskogo Tsinkovaniya na Mekhanicheskiye Svoystva Stali). Dec 59 [7]p. RTS no. 1136.
Order from LC or SLA mi$1.80, ph$1.80 60-13463

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programma, sect. 4, p. 43-44.

Palatnik, L. S. and Boyko, B. T.
ELECTRON DIFFRACTION METHOD OF PHASE ANALYSIS BY THE SUPERPOSITION METHOD. [1960] 3p. 2 refs.
Order from MDF $3.00 MDF P-144

Trans. of Fiz[ika] Met[allov] i Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 318-320.

The method described permits superposition electron diffraction patterns to be obtained from either two different films or from one film.

Semiletov, S. A.
ELECTRON DIFFRACTION INVESTIGATION OF THE SYSTEM CADMIUM-TELLURIUM (Elektronograficheskoye Issledovaniye Sistemy Splavov Kadmii-Tellur) tr. by G. Belkov. 1960, 7p. 3 refs. Technical trans. 866.
Order from NRCC NRCC C-3261

Trans. of Akad[emiya] Nauk SSSR. Inst[itut] Krist[allografii]. Trudy, 1955, no. 11, p. 121-123.

Electron diffraction patterns were obtained from Cd + CdTe, CdTe, CdTe + Te. Samples for investigation were prepared in the form of layers approximately 10^{-5} to 10^{-6} cm thick by condensing vapours in a vacuum with simultaneous evaporation of the components of the compound CdTe or an alloy with an arbitrary content of the components. As substrates for the condensation use was made of cleavage faces of crystals of rock salt or mica, celluloid films and glass plates. The temperature of the substrate during the deposition varied in the different experiments from room temperature to 300°C. In some cases the samples were annealed after deposition. There were no variations in the lattice dimensions which would have indicated the formation of solid solutions. However in sublimed layers of CdTe the existence of a previously unknown hexagonal modification of this compound was established and it was shown that the crystals of this modification have a wurtzite type of structure. The lattice spacings of this modification are in precise correspondence with the lattice spacing of the cubic modification: $a_h = a_k/\sqrt{2} = 4.56$ kX; and $c_h = 2a_k\sqrt{3} = 7.46$ kX.

Zub, A. I.
THE EFFECTIVENESS OF ZINC PROTECTORS IN A MOVING MEDIUM (Effektvinost' Tsinkovykh Protektorov v Dvizhushcheys'ya Srede). Jan 60 [7]p. RTS no. 1128.
Order from LC or SLA mi$1.80, ph$1.80 60-15069

Trans. of Vsesoyuznoye Nauchno-tekhnicheskiye Soveshchaniye po Korrozii i Zashchite Metallov, 19-24 May 58, Moscow. Programm [sect. ?] p. 52-53.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

THE TASHKENT CONFERENCE ON THE PEACEFUL USE OF ATOMIC ENERGY (Na Tashkentskoy Konferentsii po Mirnomy Ispol'zovaniyu Atomnoy Energii). 21 Dec 59 [5]p. 10 refs. AF 1256382.
Order from LC or SLA mi$1.80, ph$1.80 60-13526

Trans. of excerpts from Pravda Vostoka (USSR) 1959 nos. 227-233.

The activities of the conference held from Sept. 28 to Oct. 3, 1959 in Tashkent, Uzbekskaya SSR are summarized. Some of the papers presented are summarized.

Brodskiy, A. I.
THE MECHANISM OF HYDROGEN ISOTOPE EXCHANGE IN SOLUTIONS. 13 Apr 60, 6p. 20 refs. JPRS: 3158.
Order from OTS $0.50 60-31122

Trans. of Akademiya Nauk SSSR. Doklady, 1953, v. 93, no. 5, p. 847-850.

Shapiro, F. L.
SOME POSSIBILITIES OF USING POLARIZED THERMAL NEUTRONS RELATED TO THE NON-CONSERVATION OF PARITY IN BETA-DECAY (Nekotoryye Vozmozhnosti Ispol'zovaniia Poliarizovannykh Teplovykh Neytronov, Svyazannyye s Nesokhraneniyem Chetnosti pri β-Raspade) tr. by G. Belkov. 1960, 16p. 22 refs. Technical trans. 857.
Order from NRCC NRCC C-3282

Trans. of Uspekhi Fiz[icheskikh] Nauk (USSR) 1958, v. 65, no. 1, p. 133-140.

Consideration is given to: polarization of nuclei formed during the capture of polarized neutrons; angular distribution of β-radiation and measurement of nuclear polarization; and the notion of depolarization.

Elementary Particles

Mayer, C. and Gigon, J.
EFFECTS OF FAST NEUTRONS ON SOME PHYSICAL CONSTANTS OF CRYSTALLINE QUARTZ AND VITREOUS SILICA. [1960] 15p. 13 refs. HW-TR-10.
Order from SLA mi$2.40, ph$3.30 60-14396

Trans. of J[ournal] de Phys[ique] et le Radium (France) [1957] v. 18 [no. 2] p. 109-114.

Zdanov, G. B. and Naumov, A. A.
SLOW MESONS AT HEIGHTS OF 900-4700 METRES. [1960] [3]p. 2 refs. M 1081.
Order from LC or SLA mi$1.80, ph$1.80 60-13886

Trans. of Akademiya Nauk SSSR. Doklady, 1948, v. 60, no. 9, p. 1519.

Isotope Separation

Kuznetsova, Ye. M., Makarov, A. V., and Panchenkov, G. M.
ON THE COMPUTATION OF A SINGLE COEFFICIENT OF THE SEPARATION OF ISOTOPES FOR EQUILIBRIUM PROCESSES. 15 Apr 60, 3p. JPRS: 2476.
Order from OTS $0.50 60-11521

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1958, v. 32, no. 11, p. 2641-2643.

A method is analyzed for computing the single-stage separation factor in cases in which isotopes are separated by the methods of ionic chromatography, chemical exchange, precipitate formation (provided that the law of V. G. Khlopin has been carried out), or by other equilibrium methods.

Panchenkov, G. M., Semiokhin, I. A. and others.
THE SEPARATION OF STABLE ISOTOPES OF CARBON BY THE COUNTER FLOW CHEMICAL EXCHANGE METHOD IN THE GASEOUS PHASE, I. 5 Apr 60, 12p. 9 refs. JPRS: 2455.
Order from OTS $0.50 60-11453

Trans. of Zhurnal Fizicheskoy Khimii (USSR) [1956] v. 30, no. 9, p. 2070-2076.

The reaction of isotope exchange $C^{12}O_2 + C^{13}O \rightleftharpoons C^{13}O_2 + C^{12}O$ taking place in a diffusion column was studied. The optimum pressure of carbon dioxide for the separation of the isotopes of carbon was found to be 500 mm of Hg. An increased effect in separation was obtained by the action of steam. It was determined that the introduction of hydrogen into the system (in small quantities on pressure of hydrogen of the order of one mm of Hg) increases the effectiveness of the isotope separation, but that it then decreases with increased concentration of hydrogen. A theory explaining similar effects was advanced. (Author)

Radioactivity

Zolotov, Yu. A. and Alimarin, I. P.
PREPARATION OF RADIOCHEMICALLY PURE Np-239 BASED ON THE USE OF NUCLEAR RECOIL OF FISSION PRODUCTS. 13 Apr 60, 4p. 5 refs. JPRS: 3150.
Order from OTS $0.50 60-31121

Trans. of *Atomnaya Energiya (USSR) 1959, v. 6, no. 1, p. 70-71.

For irradiation purposes, we used an uranium dioxide, the U-235 content of which was reduced to 0.4%. The total activity of the fission products could be considerably reduced by using depleted uranium in the preparation of Np-239. Calcium carbonate was used as a filler. A uniform distribution of uranium dioxide particles in the $CaCO_3$ filler was achieved by precipitating the latter from a saturated calcium nitrate solution, in which the UO_2 particles were first dispersed. The UO_2 grains were trapped in the voluminous precipitate obtained in this manner. After being dried, the precipitate was irradiated in a reactor. The filler was separated from UO_2 by dissolving $CaCO_3$ in hydrochloric acid, followed by centrifuging and washing of the uranium dioxide, which was then dissolved in nitric acid. The final purification of Np-239 from uranium, UX_1 and UX_2 was accomplished by the extraction method. Following the ether extraction of oxidized neptunium together with uranium, the neptunium was extracted from the ether solution under the action of reducing agents, which convert it into a non-extractable pentavalent form. Cold hydrazine was found to be an effective reducing agent for the re-extraction of neptunium. (Author)

PHYSICS

AKADEMIYA NAUK UZBEKSKOY SSR [TASHKENT]. IZVESTIYA. SERIYA FIZIKO-MATEMATICHESKIKH NAUK, 1959, NO. 4, P. 3-76 [Bulletin of the Academy of Sciences of Uzbekistan SSR., Series on Physico-Mathematical Sciences]. [1960] [7]p. SOV/166-59-4-(1-10)/10.
Order from LC or SLA mi$1.80, ph$1.80 60-17018-4

Consists of abstracts in English.

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. PHYSICAL SERIES, 1959, VOL. 23, NO. 3, P. 259-410. Transactions of the All-Union Conference on the Physics of Magnetic Materials, Leningrad, Dec 57. [1960] 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1959, v. 23, no. 3, p. 266-418.

REFERATIVNYY ZHURNAL. FIZIKA (USSR) 1959, NO. 8, ABSTRACTS 17067-19174 [Journal of Abstracts. Physics]. [1960] [59]p. SOV/58-59-8-(17067-19174).
Order from LC or SLA mi$3. 60, ph$9. 30 60-17011-8

Consists of abstracts in English.

Acoustics

Al'tshuler, C. A.
RESONANT ABSORPTION OF SOUND IN PARAMAGNETIC MATERIALS, tr. by G. E. Miller. 3 July 56, 7p. 5 refs. Trans. 199.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14340

Trans. of [Akademiya Nauk SSSR. Doklady] 1952, v. 85, no. 6 [p. 1235-1238].

Daté, Hikaru.
THE ACCURACY OF REVERBERATION TIME MEASUREMENTS. Jan 60, 37p. 4 refs.
Order from SLA mi$3. 00, ph$6. 30 60-14519

Trans. of [Nihon] Onkyo Gakkaishi (Japan) 1959, v. 15, no. 1, p. 6-20.

The accuracy of reverberation time measurements was discussed in relation to the irregularity and the level range of reverberation decay curves recorded. The statistical relation was found between the unbiased estimate u of standard deviation of measured reverberation time T and the irregularity s, newly defined, of the decay curve. When s is small enough and recorded level range of the curve is constant, u/T is proportional to s. When s is larger than the critical value, u/T approaches to some constant value independent to s. Personal difference in either mean value or standard deviation of measured reverberation time was found to be negligible. It became clear that the recorded level range S/N, defined as the level difference between steady state sound pressure produced by signal sound source and background noise in a room, must be larger than 30 db in order to prevent the systematic error of reverberation time. The parameter s varies without question to some extent when either the kind of sound source or the writing speed of recording apparatus is changed. Their effects on u were therefore examined. The above results are concerned with the case of the high speed level recorder which is widely used for this purpose. The accuracy were also examined for the case of utilizing the reverberation time meters of cathode ray oscillograph type. From the results obtained, it was also considered as to what kind of sound source and the measuring apparatus are preferable and how many records of reverberation curves for a given condition must be taken in order to get the desired accuracy. (English abstract given in original)

Electricity and Magnetism

Bernshteyn, A. S.
THERMOELECTRICITY. [Popular Science Library no. 97] (Nauchno-Populyarnaya Biblioteka Vypusk 97) Oct 59 [60]p. (31 figs. omitted). F-TS-9986/III.
Order from LC or SLA mi$3. 60, ph$9. 30 60-15441

Trans. of mono. Thermoelektrichestvo, Moscow, 1957.

Information is surveyed under the following chapter headings: What is thermoelectricity; What happens in a thermocouple; Properties of thermocouples; The thermoelectric thermometer; The thermocouple needle; Instruments that automatically record and control temperature; Measuring temperature on moving surfaces; Thermometers that can be held in a flame or in molten metals; Thermocouples in radio engineering; Remote temperature measurement [with] radiation pyrometers; Can we determine the temperature of stars and planets; Thermoelements and thermopiles; Instruments for determining solar energy; Thermoelectric generators; What interferes with the operation of thermoelectric generators; Modern thermoelectric generators; and Electrical energy from solar rays.

Friedel, J.
THE KNIGHT SHIFT IN ALLOYS (Deplacement de Knight dans les Alliages) tr. by D. A. Sinclair. 1960, 5p. 5 refs. Technical trans. 864.
Order from NRCC NRCC C-3249

Trans. of le Journal de physique et le Radium (France) 1955, v. 16, no. 6, p. 444-445.

Recent calculations of electron density in alloys suggest that the Knight shift of the matrix nuclei is practically unaffected by the substitution of atoms in solid solution, even at comparatively high concentrations. (Author)

Ginsburg, V. L. and Landau, L. D.
ON THE THEORY OF SUPERCONDUCTIVITY. Oct 51, 24p. 12 refs. M 1020.
Order from LC or SLA mi$2. 70, ph$4. 80 60-13723

Trans. of [Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki] (USSR) 1950, v. 20, p. 1064ff.

The construction of a theory is attempted which enables the destruction of superconductivity in thin films by a current to be considered. The theory leads to a number of new qualitative conclusions which may be checked experimentally.

Heintz, Werner.
INVESTIGATION OF THE HIGH FREQUENCY SPECTRUM OF PERIODIC DISCHARGES (Untersuchung des Hochfrequenten Spektrums Periodischer Entladungen) tr. by D. A. Sinclair. 1959, 20p. 7 refs. Technical Trans. 848.
Order from NRCC NRCC C-3214

Trans. of Z[eitschrift für] Angew[andte] Physik (West Germany) 1959, v. 11, no. 2, p. 51-56.

A voltage generator is singled out from the complex process of corona discharge and is realized in a (negative) point-plate arrangement. The spectrum of the almost periodically occurring Trichel pulses is evaluated with the aid of a high frequency spectrometer. The pulse form leading to this spectrum can be given with the aid of Fourier transformations. The form of the current impulse is directly related to the solution of the diffusion differential equation which describes the discharge process. In the evaluation of the spectrum the circuit elements through which the current pulse flows are to be taken into account. A general relationship between the measured spectrum and the spectrum of the pulse before it enters the test setup is constructed and stated in particular for the test arrangement employed. The method of investigation constitutes a partial analysis of the spectra of radio interference voltages encountered in practice. It opens the way to a study of the time dependence of gas discharges in suitable cases. (Author)

Kholodenko, L.
ON THE DOMAIN STRUCTURE OF FERROMAGNETIC BODIES IN THE PRESENCE OF A MAGNETIC FIELD (O Domennoy Strukture Ferromagnetikov pri Nalichii Magnitnogo Polya). [1960] [30]p. (foreign text included) 5 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-14201

Trans. of Zhurnal Eksp[erimental'noy i] Teoret-[icheskoy] Fiz[iki] (USSR) 1947, v. 17, no. 8, p. 698-707.

The present paper is an attempt to investigate the conditions of existence of a domain structure in a ferromagnetic specimen with a very low anisotropic constant, having the shape of a thin plate and being uniformly extended in a direction normal to the surface and in the presence of an external magnetic field of the same direction. The discussion is based on the Landau-Lifshitz model. In order to avoid mathematical difficulties very rough approximations have been used. An estimate has been made of the critical value of the magnetic field above which the existence of the domain structure is impossible. An estimate is given of the initial susceptibility. (Author)

Neel, Louis.
EFFECT OF CAVITIES AND OF INCLUSIONS ON THE COERCIVE FORCE. [1960] 41p. (7 figs. omitted) 12 refs.
Order from SLA mi$3.30, ph$7.80 60-14328

Trans. from [Cahiers de Physique] (France) 1944, no. 25.

Neel, Louis.
MAGNETISM; A NEW GENERAL THEORY FOR COERCIVE FORCE. [1960] 4p. 6 refs.
Order from SLA mi$1.80, ph$1.80 60-14323

Trans. of Academie des Sciences [Paris]. Comptes Rendus (France) 1946, v. 223, p. 198-199.

Neel, Louis.
MAGNETISM; CALCULATION FOR COERCIVE FORCE ACCORDING TO THE THEORIES OF BECKER AND KERSTEN. [1960] 4p. 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14322

Trans. of Academie des Sciences [Paris]. Comptes Rendus (France) 1946, v. 223, p. 141-142.

After having refined the conditions for calculations and rendered the initial hypotheses more plausible, it is concluded that the variations of the superficial tension of a wall only play a secondary role in the origin of the coercive force. (See also 60-14323)

Néel, Louis.
SOME PROPERTIES OF WALLS OF ELEMENTARY FERROMAGNETIC DOMAINS. [1960] 25p. 13 refs.
Order from SLA mi$2.70, ph$4.80 60-14329

Trans. from Cahiers de Physique (France) 1944, no. 25.

Paćes, J.
DETERMINATION OF SPONTANEOUS MAGNETIZATION IN THE CURIE POINT REGION. [1960] 10p.
Order from ATS $17.95 ATS-80M38C

Trans. of Československ[enaky] Casopis pro Fysiku, 1958, v. 8, p. 566-574.

Zhuravlev, N. N., Stepanova, A. A., and Zyuzin, N. I.
ON THE SUPERCONDUCTIVITY OF THE BiPt COMPOUND. Jan 60, 4p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14492

Trans. of *Zhurn[al] Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1959, v. 37, no. 3[9] p. 880-881.

Experiments are described which suggest that the superconducting properties of bismuth with platinum alloys of the composition BiPt or nearly this composition, prepared in different ways, change on account of the formation of the defective structure on the basis of the structure of the BiPt compound. The latter is formed, probably, on account of the very rapid cooling of the liquid alloy when not all of the vacancies in the NiAs structure are occupied by bismuth or platinum atoms during crystallization. The defective structure is formed with a deficiency of platinum. A reduction of the dimensions of the elementary cell leads to a reduction of the minimal interatomic distances bismuth-bismuth and, hence, gives rise to a change of T_C.

Electronics

Marzuvanov, V. L.
ON THE PECULIARITIES OF AN ARC DISCHARGE IN THE ATMOSPHERE OF CERTAIN GASES. [1960] 4p. 6 refs.
Order from MDF $3.00 MDF M-129

Trans. of *A[kademiya] N[auk] SSSR. Izv[estiya]. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1059-1061.

Yelinson, M. I. and Vasil'yev, G. F.
FIELD EMISSION, tr. by C. D. [1960] [219]p. (119 figs. omitted) 243 refs. H 4806.
Order from LC or SLA mi$9.60, ph$33.30 60-15895

Trans. of mono. Avtoelektronnaya Emissiya, Moscow, 1958.

The theory and experimental studies of field emission of metals are surveyed. The causes of instability of emission and possible ways of raising the stability of emission characteristics are considered. The theory and extremely few experimental studies (U. S. A. and U. S. S. R) of field emission of semiconductors are examined. Questions connected with the problem of nonmetallic complex field emitters are discussed. Present applications of field emission in cathode electronic devices and in electronic emission microscopes with high resolution are reviewed.

Molecular Physics and Spectroscopy

Averbukh, M. M., Artsishevskiy, N. V. and others.
NEW PHOTOELECTRIC SPECTRAL APPARATUS. [1959] 2p. 2 refs.
Order from MDF $3.00 MDF A-141

Trans. of *A[kademiya] N[auk] SSSR. Izvestiya. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1105-1107.

Descriptions are presented of two new four-channel apparatuses, the FESA-4 and the FESA-4M. In the recording units of the new apparatus the battery supply of the amplifier has been replaced by a supply from a stabilized rectifier.

Bubnov, N. N., Voyevodskiy, V. V. and others.
THE ELECTRON PARAMAGNETIC RESONANCE SPECTRA OF HYDROGEN ATOMS STABILIZED ON SOLID SURFACES. [1960] 2p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3824

Trans. of *Optika i Spektroskopiya (USSR) 1959, v. 6 [no. 4] p. 565-566.

The nature of the surface influences the magnitude of the hyperfine splitting in the electron paramagnetic resonance (EMR) spectrum of hydrogen atoms, and the EMR spectra of hydrogen atoms stabilized on quartz, silica gel and molybdenum glass. The width of the hydrogen doublet components is approximately 0.8 oer on quartz, 2.4 oer on silica gel, and 4.5 oer on glass. Since the value of the hyperfine splitting in the EMR spectrum of hydrogen atoms stabilized on surfaces is close to the value of the hyperfine splitting for the free atom, the binding of the hydrogen atoms to the surface must occur without significant change in the spin density of the unpaired electron in the atom. On the other hand, the width of the spectral components depends on the nature of the stabilizing surface; this indicates the existence of a definite interaction between the unpaired electron and the surface. (See also 59-11862)

Peraldo, Mario.
INTERPRETATION OF THE INFRARED SPECTRUM OF ISOTACTIC POLYPROPYLENE. [1960] 17p. 11 refs.
Order from RIS $20.00 RIS rept. 97070

Trans. of Gazz[etta] Chim[ica] Ital[iana] 1959, v. 89, p. 798-808.
Another translation is available from ATS $13.75 as ATS-54L34I [1959] 10p.

The infrared spectrum of the crystalline isotactic polypropylene has been studied by examining the disordered and monodimensionally ordered agregates of crystallites. The monoclinic crystalline structure of polypropylene has been noted and since it is known that the chain is coiled tri-spirally it was possible to carry out the analysis of normal modes of vibration. The number of bands observed and their infrared dichroism are in good agreement with what could be predicted considering the ternary symmetry of the r) isolated molecule. (Author)

Shimizu, Kazuhiro.
INTRAMOLECULAR POTENTIAL OF PYRAMIDAL $M(CH_3)_3$ MOLECULES. [1959] 7p. 9 refs.
Order from SLA mi$1.80, ph$1.80 60-14245

Trans. of Nihon Kagaku Zasshi (Japan) 1956, v. 77, no. 7, p. 1103-1105.

Considerations are presented on the skeletal vibrations of several types of pyramidal $M(CH_3)_3$ molecules, in order to clarify the origin of these Raman lines.

Sidorov, T. A. and Sobolev, N. N.
INFRARED AND COMBINATION SPECTRA OF BORON ANHYDRIDE. II. INFRARED SPECTRUM AND THE STRUCTURE OF A BORON ANHYDRIDE MOLECULE, tr. by Boris W. Kuvshinoff. 14 Oct 59 [15]p. 11 refs. TG 230-T151.
Order from LC or SLA mi$2.40, ph$3.30 60-15984

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 3, no. 6, p. 560ff.

The infrared spectrum of ordinary glassy boron anhydride and boron anhydride enriched with isotope B^{10} was radiated in the region from 2.5 to 24μ. Three strong absorption bands having frequencies of 1330, 1260, and 718 cm^{-1} were observed. Bands at 1260 and 718 cm^{-1} shift by 21 cm^{-1} and 6 cm^{-1}, respectively, in transition from ordinary boron anhydride to boron

anhydride enriched with isotope B^{10}. Data on the number of frequencies and their activity in the infrared and combination spectra show that the molecule of boron anhydride has the formula B_4O_6 and belongs to the point symmetry group T_d. (Author)

Tsap, M. L.
CONDITIONS FOR THE FORMATION OF BLUE SILICO-MOLYBDENUM HETEROPOLY ACID. [1960] 7p. 6 refs.
Order from MDF $3.50 MDF T-144

Trans. of Zav[odskaya] Laborat[oriya] (USSR) 1955, v. 21, no. 3, p. 281-285.

The conditions for the formation of the blue silico-molybdenum heteropoly complex in dilute solutions were studied as a function of the temperature, the hydrogen ion, reducer, molybdate, phosphorus and arsenic concentrations. The calculated magnitude of the molar light-absorption coefficient of the blue silico-molybdenum heteropoly complex was 1.1×10^4 in the 825 to 837 mμ region.

Ziechmann, W.
INVESTIGATIONS CONCERNING INFRARED SPECTRA OF HUMIC ACIDS. [1960].
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 353-359.

Optics

Arp, Ferdinand.
STATISTICAL OBSERVATIONS ON MEASUREMENTS OF VISUAL PROPERTIES OF THE HUMAN EYE. Jan 60, 11p. 3 refs.
Order from SLA mi$2.40, ph$3.30 60-14490

Trans. of Zeitschrift fur Angewandte Physik (West Germany) 1958, v. 10, no. 7, p. 317-320.

Fol'b, R. L.
THE EFFECTIVE LUMINOUS INTENSITY AND CONSPICUITY OF FLASHING LIGHTS (Effektivnaya Sila Sveta i Zametnost Probleskovykh Ogney). Jan 60 [17]p. 28 refs. RTS 1232.
Order from LC or SLA mi$2.40, ph$3.30 60-15427

Trans. of Svetotekhnika (USSR) 1958, v. 4, no. 12, p. 11-16.

Ioffe, Yu. K. and Sukhodrev, A. M.
SCINTILLATION COUNTER FOR SOFT X-RAYS AND CERTAIN RESULTS OF ITS USE IN A HIGH-SPEED DIFFRACTOMETER MODEL. [1960] 11p. 11 refs.
Order from MDF $6.00 MDF I-122

Trans. of *Kristallografiya (USSR) 1959, v. 4, no. 4, p. 554-562.

Means are shown of increasing the rate and accuracy of analysis in diffractometry. The block diagram and construction of a high-speed diffractometer with a scintillation counter developed by the authors are described briefly. The diffractometer permits diffraction patterns to be obtained eight times more rapidly or the statistical accuracy of the diffraction patterns obtained to be magnified three times in comparison with the URS-50I diffractometer. Means are mentioned of further improving the diffractometers. (Author)

Kroebel, W., Arp, F., and Baurmeister, H.
THE PERCEPTION OF IMAGE DETAILS OF TELEVISION IMAGES. Feb 60, 25p. 6 refs.
Order from SLA mi$2.70, ph$4.80 60-14491

Trans. of Zeitschrift für Angewandte Physik (West Germany) 1958, v. 10, no. 7, p. 320-327.

The existence was demonstrated of a linear connection between the contrast and the perception of details. The measuring of the fine contrast made it possible to obtain a quantitative relationship to the values obtained during optical projection. Perception related to fine contrast is the same in the television image and in purely optical reproduction up to an object size of $f_0 = 2.86$ megacycles per second. For objects corresponding to $f_0 = 4.76$ megacycles per second a deviation of about 20 to 30% of the contrast was found for the same perception. At an observation distance of 6 picture heights the agreement holds true for the smallest perceptible images. The determination of the quality of a system for this case is possible by photometry of fine contrasts for various object sizes. (See also 60-14324)

Solid State Physics

*KRISTALLOGRAFIYA [MOSCOW] (USSR) 1959, VOL. 4, NO. 6, P. 807-955 (Crystallography). [1960] 1v. SOV-70-4-6-(1-31)/31.
Order from OTS $0.70, $4.00/year PB 141 065T-11
Foreign $0.95, $5.50/year

Consists of abstracts in English.

Bagaryatskiy, Yu. A. and Tyapkin, Yu. D.
STRUCTURAL CHARACTERISTICS OF THE ALLOY Ni-Al IN THE DECOMPOSITION PROCESS OF A SUPERSATURATED SOLID SOLUTION OF ALUMINUM IN NICKEL (Osobennosti Stroyeniya Splavov Ni-Al v Protsesse Raspada Peresyshchennogo Tverdogo Rastvora Alyuminiya b Nikele). 26 Aug 57 [11]p. 16 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14512

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 108, no. 3, p. 451-454.

Folberth, O. G.
SURVEY OF CERTAIN PHYSICO-CHEMICAL PROPERTIES OF $A^{III}B^{V}$ COMPOUNDS WITH SPECIAL CONSIDERATION OF PHASE DIAGRAMS. Paper presented to the Halbleiterauschuss des Verbandes Deutscher Physikalischer Gesellschaften, Apr 59 in Bad Pyrmont. Dec 59, 66p. 90 refs. TR 59-159.
Order from SLA mi$3.90, ph$10.80 60-14332

Trans. of mono. pub. Erlangen, n.d., by Research Lab. of Siemens-Schuckertwerke A.G.

Indenbom, V. L. and Tomilovskiy, G. E.
MACROSCOPIC EDGE DISLOCATIONS IN CRYSTALLINE CORUNDUM (Makroskopicheskiye Krayevyye Dislokatsiy v Kristalle Korunda). Aug 58 [5]p. (2 figs. omitted) 13 refs. C.T.S. no. 502.
Order from LC or SLA mi$1.80, ph$1.80 60-15578

Trans. of *Kristallografiya (USSR) 1957, v. 2, no. 1, p. 190-192.

Kornilov, I. I.
TOUGHENING OF SOLID SOLUTION OF NICKEL AT HIGH TEMPERATURES (Uprocheneniye Tverdykh Rastvorov Nikelya pri Vysokikh Temperaturakh). [1960] [7]p. 15 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14510

Trans. of Akademiya Nauk SSSR. [Otdeleniye Tekhnicheskikh Nauk]. Izvestiya, 1956, no. 1, p. 119-125.

The strength of nickel increases and the multiple (sic) of toughness increases accordingly, in relation with composition and attainment of the limited saturation.

Kornilov, I. I. and Snetkov, A. Ya.
STUDY OF THE LIMITED SOLID SOLUTIONS OF NICKEL BY THE X-RAY METHOD (Izucheniye Organichennykh Tverdykh Rastovorov Nikelya Rentgenostrukturnym Metodom). [1960] [12]p. 12 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14511

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. -Izvestiya, 1955, no. 7, p. 84-88.

Kornilov, I. I., Snetkov, A. Ya., and Titov, F. M.
A STUDY OF THE SOLUBILITY OF TITANIUM AND PHASE COMPOSITION IN ALLOYS OF NICKEL-CHROMIUM-TUNGSTEN-ALUMINUM-TITANIUM QUINTUPLET SYSTEM (Izucheniye Rastvorimosti Titana i Fasovogo Sostava Splavov v Pyaternoy Sisteme Nikel'-Khrom-Vol'tram-Alyuminiy-Titan). 23 Aug 57 [20]p. (foreign text included) 14 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14508

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1957, v. 2, no. 1, p. 160-166.

The results of thermal, metallographic, and X-ray structural investigations of alloys belonging to the partially quintuplet nickel-chromium-tungsten-aluminum-titanium system show that the solubility of titanium does not exceed 1 percent when the chromium, tungsten and aluminum contents are constant and equal to 20.6 and 5 percent by weight, respectively, at 800° to 1000°C. A further increase in the temperature causes an increase in the solubility, which at 1100°C is 2 percent and at 1200°C is about 5 percent titanium. By X-ray photographing the sediments precipitated from the alloys containing 3.25, 5, and 8.2 percent of titanium, after soaking at 1130°C during 10 hours and quenching in the air, it was established that these sediments are composed of two phases: a γ^1 phase and a phase with a body-centered lattice. It was supposed that the latter belongs to a tungsten base solid solution. In all probability this phase was created by an incomplete equilibrium state in the investigated alloys. With the increased titanium content in the heterophased alloy, the lattice period of the nickel base solid solution and the γ^1 phase increase, but the lattice spacing of the tungsten base phase decreases. The changes in the lattice spacing of the coexisting phases is related to redistribution of the concentration of the elements making up these phases. Phase Ni_3Ti was discovered in the alloy containing 9.4 percent titanium after it had been aged at 1130°C for 10 hours. In the above indicated alloy, it is quite possible, that in addition to the discovered Ni_3Ti phase, there was also stable γ^1 phase which is a solid solution with Ni_3Al base. (Author)

Kot, M. V. and Tyrziu, V. G.
CERTAIN OPTICAL PROPERTIES OF THIN FILMS OF CADMIUM AND ZINC SELENIDES. [1960] 8p. 6 refs.
Order from MDF $4.50 MDF K-207

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 4, p. 13-18.

Thermal conditions of producing thin layers of CdSe and ZnSe and their subsequent heat treatment were found to exert a substantial influence on their optical properties. Uniform CdSe layers can be obtained by deposition of pure polycrystalline samples in vacuo or by the Vekshinskii method on glass substrates heated above 200°C. Such layers are stable when heated in vacuo to 500° and in an open atmosphere to 400°C. Uniform layers of ZnSe can be obtained in vacuo on substrates heated above 170°C. Such layers are stable when heated above 315°C in both a vacuum and in air. The optical properties of thin layers of cadmium and zinc selenide depend on their thickness. The optical activation energy, determined by means of the long wavelength absorption boundary is 1.72 electron volts for CdSe and 2.43 electron volts for ZnSe.

Kuliyev, A. A.
DETERMINATION OF DIFFUSION COEFFICIENTS OF CERTAIN IONS IN SELENIUM BY THE BETA-RAY ABSORPTION METHOD (Opredeleniye Koeffitsiyenta Diffuzii Nekotorykh Ionov v Selene Metodom Absorbtsii β-Izlucheniya). Mar 60 [8]p. 3 refs. RTS 1293.
Order from LC or SLA mi$1.80, ph$1.80 60-15882

Trans. of A[kademiya] N[auk] Azerbaydzhanskoy SSR [Baku]. Inst[itut] Fiz[iki] i Matemat[iki]. Trudy, 1958, v. 9, p. 5-9.

Experiments on the determination of diffusion coefficients of strontium, iron and zinc in hexagonal selenium as a function of temperature are elucidated. (Author)

Marucchi, J. and Nifontoff, N.
STUDY OF THE ORIENTED GROWTH OF GERMANIUM ON A SINGLE CRYSTAL OF FLUORITE.
Feb 60, 4p. 4 refs.
Order from SLA mi$1.80, ph$1.80 60-14489

Trans. of Academie des Sciences [Paris]. Comptes Rendus (France) 1959, v. 249 [no. 3] p. 435-437.

Experiments showed that the vacuum evaporation of germanium on surfaces of calcium fluorite single crystals makes it possible to obtain oriented films of germanium by epitaxial growth. The presence of numerous twin crystals is observed, however.

Samsonov, G. V., Neshpor, V. S., and Strel'nykova, N. S.
MAGNETIC SUSCEPTIBILITY OF SOLID SOLUTIONS OF CERTAIN METALLINE COMPOUNDS (Magnitna Spryynyatlyvist' Tverdykh Rozchyniv Deyakykh Metalopodibnykh Spoluk) [Magnitnaya Vospriimchivost' Tverdykh Rastorov Nekotorykh Metallopodobnykh Soyedineniy] [1959] [7]p. 5 refs. F-TS-9904/V.
Order from LC or SLA mi$1.80, ph$1.80 60-13092

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1958, no. 8, p. 838-839.

A study of the magnetic susceptibility displayed by the single-phase solid solutions of isomorphous metalline compounds: ZrC-NbC, TaC-NbC, TaB_2-ZrB_2, and TiC-TiN. The concentration dependence of the relative magnetic susceptibility of these alloys was determined and graphed. In the solutions ZrC-NbC and TaB_2-ZrB_2, Zr replaces Nb and Ta atoms because of the higher accepting capacity of its d- envelope. The magnetic susceptibility of these alloys reaches a maximum and then declines as ZrC and ZrB_2, which are less magnetic, increase. In the TaC-NbC solution there is no maximum magnetic susceptibility dependent on concentration because both metallic components possess almost equal accepting capacities of their d-envelopes. In the TiC-TiN solution an abrupt decrement in the magnetic susceptibility occurs at 20 to 40 mol-% of TiC and then no further decrease due to C atoms (with low ionization potential) replacing N atoms (with higher ionization potential).

Sergiescu, V.
A STATISTICAL PROOF OF THE CYCLIC CONDITIONS IN THE ZONE THEORY OF CRYSTALS.
[1960] 4p.
Order from ATS $8.00 ATS-78M38RU

Trans. of Acad[emia] Rep[ublicii] Populare Romine. Inst[itutal de Fiz[ica]. Studii Cercetari [de] Fiz[ica] (Rumania) 1958, v. 9, no. 4, p. 459-463.

Shuvalov, L. A.
FERROMAGNETIC PHASE TRANSITIONS AND THE SYMMETRY OF CRYSTALS. Jan 60, 23p. 28 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-14325

Trans. of *Kristallografiya (USSR) 1959, v. 4, no. 3, p. 399-409.

If, in a crystal of the original paramagnetic phase, the vector of spontaneous magnetization M is extended in varying directions, all possible ferromagnetic phase transitions to different crystallographic or magnetic symmetries may be formally obtained. A tabulation of these crystallographic and magnetic symmetry changes occuring during ferromagnetic phase transitions is made of the 32 symmetry classes for the purpose of predicting the number and symmetry of the ferromagnetic phases, the nature of the domain structure transitions, symmetry changes in external fields, etc., on analysis of concrete ferromagnetic substances.

Yefimov, E. A. and Yerusalimchik, I. G.
ON THE CHARACTERISTICS OF THE ELECTROCHEMICAL DISSOLUTION OF n-TYPE SILICON.
Feb 60 [4]p. 7 refs. TR-60-20.
Order from LC or SLA mi$1.80, ph$1.80 60-14533

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1960, v. 130 [no. 2] p. 353-355.

Experiments showed that the holes necessary for the anodic dissolution of Si are generated mainly in the space-charge region at the boundary of the electrolyte and not in the bulk of the semiconductor.

Theoretical Physics

Gershman, B. N.
ON LONGITUDINAL WAVES IN A NONISOTHERMAL PLASMA. [1960] 4p. 6 refs.
Order from MDF $4.00 MDF G-168

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Radiofizika (USSR) 1959, v. 2, no. 4, p. 654-655.

Attention is given to a number of peculiarities in the behavior of these waves, which are to a known degree similar to the peculiarities of high-frequency wave propagation in a magnetoactive plasma. Formulas are presented for the damping decrement which are more complete than those given by G. V. Gordeyev (Zhur. Eksptl. i Teoret. Fiz. 27: 19, 1954; a translation is available from LC or SLA as 59-20268) and J. B. Bernstein (Phys. Rev. 109: 10, 1958). (See also 59-19464, 59-20286, 60-12917)

Gershman, B. N.
ON NORMAL WAVES IN A HOMOGENEOUS PLASMA IN A MAGNETIC FIELD. [1959] 7p. 8 refs.
Order from MDF $7.00 MDF G-175

Trans. of mono. [Pamyati Aleksandra Aleksandrovicha Andronova] (Memorial Volume to A. A. Andronov) [Moscow] 1955, p. 599-605.

We made an analysis in which we tried to answer the questions which are still unclear in previous works devoted to an investigation of plasmon waves and we also tried to clarify the character of the thermal corrections for ordinary and extraordinary waves. Here, by presenting the results of computations carried out, we shall briefly indicate certain peculiarities in the behavior of the waves. (Author)

Gordeyev, G. V.
EXCITATION OF PLASMA OSCILLATIONS (Vozbuzhdeniye Kolebaniy Plazmy) tr. by M. Slade. [1960] [10]p. (foreign text included) 4 refs. Trans. no. 3885.
Order from LC or SLA mi$1.80, ph$1.80 60-15370

Trans. of Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1954, v. 27, no. 1(7) p. 24-28. Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-20267 [1959] 10p.

A theoretical investigation is presented of the interaction of the plasma and the charged particle packet, which arises in the plasma under the influence of a constant external electric field when the temperature range of the velocities of the packet's particles is taken into account. It is shown that the stationary state of the plasma and the particle packet is not stable. In the absence of an external field, the packet scatters and the state of the system becomes a state of equilibrium of the plasma. When a constant external electric field is present, a stable state of the system is possible with non-damping high-frequency and low-frequency plasma oscillations. (See also 59-20268)

Tartakovskiy, L. S.
RADIATION OF A DIPOLE OVER A FLAT HOMOGENEOUS EARTH (CONTINUATION). [1959] 8p. 3 refs.
Order from MDF $4.00 MDF T-142

Trans. of *Radiotekhnika (USSR) 1959, v. 14, no. 8, p. 8-13.

An analysis is presented of general formulas for the field intensities in the far field created by vertical and horizontal lowered magnetic dipoles located on a flat homogeneous earth. In addition, the transformation is made from formulas for the fields of lowered ($h \leq 0$) dipoles to formulas for the fields of elevated ($h > 0$) dipoles.

Thermodynamics

Chechetkin, A. V.
HEAT TEMPERATURE HEAT TRANSFER MEDIA. Sep 59 [132]p. F-TS-9883/V.
Order from LC or SLA mi$6.90, ph$21.30 60-15447

Trans. of mono. Vysokotemperaturnyye Teplonositeli, Moscow/Leningrad, 1957, Chap. 1, 7, and 9 [p. 2-4, 7-17, 28-29, 129-157].

The three chapters are devoted to gases and gaseous media, liquid nonboiling organic heat carriers, and inorganic liquid heat carriers.

De Marco, Albert Geno and Bilmore, Ross, Jr.
PROCESS FOR COOLING ALKALI METAL HYDROXIDE SOLUTIONS. [1960] 7p.
Order from LCor SLA mi$1.80, ph$1.80 60-14206

Trans. of Belgian patent 572 237, by Columbia-Southern Chemical Corp., 21 Oct 58.

Gokhshteyn, D. P.
THE MEANING OF INCREASE OF ENTROPY IN THE ANALYSIS OF HEAT PROCESSES. [1960] 31p. (5 figs. 2 tables omitted) 4 refs.
Order from LCor SLA mi$2.70, ph$4.80 AEC-tr-3838

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1951, v. 21, no. 9, p. 1121-1136.

The method of applying the properties of entropy increase to an isolated system for the purpose of analyzing the perfection of heat processes is presented. It is shown that the concepts of work capacity of heat and the loss of energy of an insulated system characterize the degree of deviation of the actual processes from the ideal more clearly and obviously than do the coefficients of useful work. The value of energy loss of an insulated system, as a derivative of the increase of its entropy per absolute temperature of the surrounding medium, is made more exact. The additive properties of entropy make it possible to construct an equation characterizing the perfection of a heating system and the operation of an apparatus in the form of a function of the sum of variables which submit more easily to mathematical operations than does the effective coefficient of useful work, which is a function of a derivative of the variables. The study also attempts to develop the sphere of technical thermodynamics somewhat, considering the practical application of the basic inequality of the second law. (Author)

Wave Propagation

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. RADIOFIZIKA (USSR) [News of Institutes of Higher Learning. Radiophysics].
Order from LC or SLA mi$3.00, ph$6.30

1958, vol. 1, no. 1, p. 5-152, abstracts 1-14, 60-17029-1
1958, vol. 1, no. 4, p. 3-171, abstracts 1-26, 60-17029-4
1958, vol. 1, no. 5-6, p. 3-189, abstracts 1-28, 60-17029-3
1959, vol. 2, no. 1, p. 3-146, abstracts 3-146, 60-17013-1

Consists of abstracts in English.

Bespalov, V. I.
WAVE PROPAGATION IN TRANSMISSION LINES WITH NONUNIFORM SURFACE IMPEDANCE.
Oct 59, 13p. 10 refs. AFCRC-TN-59-954; B-143.
Order from LC or SLA mi$2.40, ph$3.30 60-15983

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Radiofizika (USSR) 1958, v. 1, no. 3, p. 54-63.

The reradiation of waves depending on small random changes in the surface impedance in waveguides with impedance walls has been investigated by a perturbation method. General formulas have been obtained for the reflection coefficient of the waves being propagated as well as for the coefficients of their transformation into other kinds of waves. A line formed by two planes on one of which a variable impedance has been prescribed and a nonuniform impedance plane has been analyzed in more detail. The mean power reradiated by the nonuniformities has been determined in the case of the nonuniform impedance plane. In conclusion, a remark has been made on the average directivity pattern of a traveling wave antenna with random nonuniformities. (Author)

Petrina, D. Ya.
DISPERSION RELATIONS IN A DIFFRACTION PROBLEM. Oct 59, 10p. 7 refs. AFCRC-TN-59-794; P-137.
Order from LC or SLA mi$1.80, ph$1.80 60-13008

Trans. of Ukr[ainskiy] Mat[ematicheskiy] Zh[urnal] (USSR) 1958, v. 10, no. 4, p. 405-412.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

*IZMERITEL'NAYA TEKHNIKA (USSR) 1959, NO. 12, P. 1-68 (Measurement Techniques) [1960] lv. SOV-115-59-12-(1-29)/29.
Order from OTS $0.70, $4.00/year PB 141 112T-16
Foreign $0.95, $5.50/year

Consists of abstracts in English.

ON THE RESULTS OF THE COORDINATION OF SCIENTIFIC ACTIVITY OF THE ACADEMY OF SCIENCES UkSSR. 15 Mar 60, 7p. JPRS: 2347.
Order from OTS $0.50 60-11370

Trans. of Akademiya Nauk URSR, Kiev. Visnyk, 1959 [v. 30] no. 9, p. 59-62.

SCIENTIFIC INFORMATION REPT. 1 Apr 60, 99p.
Order from OTS $2.75, $28.00/year PB 131 891T-43

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

SCIENTIFIC AND TECHNOLOGICAL NEWS. 23 Mar 60, 20p. JPRS: 2416.
Order from OTS $0.75 60-11424

Trans. of K'o hsüeh Hsin wen (Chinese People's Republic) 1959, no. 34, p. 10-14.

Contents:
The observation and prediction of artificial satellites
The successful pilot manufacture of four kinds of radiation instruments, by Tsu-hua Hu
The building of 30,000 atmosphere, liquid medium, high-pressure equipment
Protection against radioactive substances, by Tsu-hua Hu
The study of solid emitters, achievement during the big leap forward
Electron microscope
New remote control - remote signalling equipment, by Yuan-ch'ing Chin

SOVIET SCIENTIFIC AND ENGINEERING PERSONNEL. 29 Mar 60, 34p. JPRS: 2377.
Order from OTS $1.00 60-11399

Consists of complete translations of selected biographic articles from Russian publications.

Ivaknenko, A. G.
FUNDAMENTAL PROBLEMS IN THE GENERAL THEORY OF CYBERNETIC SYSTEMS OF AUTOMATIC CONTROL, III. 17 Mar 60, 19p. 6 refs. JPRS: 3069.
Order from OTS $0.50 60-31091

Trans. of Avtomatika (USSR) 1959, no. 1, p. 39-50.

In this part we reexamine the problem of combined regulation and control by disturbances. We review the system of simultaneous useful signals and noise. But we investigate the methods of improving the interference-proof quality of the system under combined control. The possibility of applying the ordinary theory of combined stabilization systems to cybernetic systems is discussed in part I, and that part therefore represents a further elaboration of these questions. We attach particular importance to the basic structural schemes of both ordinary and cybernetic systems of control. (Author)

Val'skiy, R. E.
THE SMALLEST NUMBER OF MULTIPLICATIONS FOR A GIVEN INVOLUTION. 15 Mar 60, 3p. JPRS: 2364.
Order from OTS $0.50 60-11393

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 73-74.

Yakhontov, L. N., Kolpakova, V. V. and others.
[ON] SCIENTIFIC RESEARCH WORK IN THE INSTITUTES OF THE CZECHOSLOVAK REPUBLIC, II. 4 Apr 60, 6p. 1 ref. JPRS: 2461.
Order from OTS $0.50 60-11460

Trans. of Meditsinskaya Promyshlennost' SSSR, 1959, [v. 13] no. 12, p. 52-55.

The methods of physico-chemical analysis (paper chromatography, polarography, electrometric titration, and colorimetry) used most widely in Czechoslovakia are surveyed, and some problems of the organization of scientific work are reviewed. (See also 60-11266)

Communication Theory

Lyapunov, A. A.
MATHEMATICAL RESEARCH CONNECTED WITH OPERATION OF ELECTRONIC COMPUTERS.
1 Apr 60, 35p. JPRS: 2430.
Order from OTS $1.00 60-11433

Trans. of mono. Matematika v SSSR za Sorok Let 1917-1957, Moscow, 1959, v. 1, p. 857-877.
Other translations are available from MDF $14.00 as MDF L-125, 1959, 28p. and from LC or SLA mi$2.70, ph$4.80 as 59-22221, AFCRC-TN-59-753, Sep 59 [30]p.

The survey consists of 4 sections: (1) theoretical investigations from the programming branch, (2) nonarithematical utilization of computers, (3) theoretical investigations of control systems, and (4) other problems of mathematical cybernetics.

Pushnoy, B. M.
GEOMETRIC CONSTRUCTION OF OPTIMUM CODES.
Mar 60 [15]p. 5 refs. AFCRC-TN-60-181; P-142.
Order from LC or SLA mi$2.40, ph$3.30 60-15854

Trans. of *Elektrosvyaz' (USSR) 1959, v. 13, no. 10, p. 3-12.
Also available from MDF $6.50 as MDF P-142 [1959] 13p.

The possibilities are considered of constructing codes with increased interference-immunity. It is shown that the points of optimum code signals coincide with the vertices of certain regular multidimensional polyhedra. Also, a number of multidimensional irregular polyhedra whose vertices can be points of optimum code signals is investigated. (Author)

BOOK REVIEWS

The following book reviews can be ordered by number from LC or SLA. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and a detailed table of contents. The length of each review is indicated at the end of the entry.

BR-SOV/311
Shternfel'd, Ario Abramovich
OT ISKUSSTVENNYKH SPUTNIKOV K MEZHPLANETNYM POLETAM (From Artificial Satellites to Interplanetary Travel) Moscow, Gostekhizdat, 1957. 125p. 100,000 copies printed. 4p.
Mi $1.80, ph $1.80.

BR-RUM/2937
Mihailescu, Tiberiu
GEOMETRIE DIFERENTIALA PROIECTIVA (Projective Differential Goemetry) [Bucuresti] Editura Academiei Republicii Populare Romîne, 1958. 494p. (Series: Biblioteca matematica, II) 2,000 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3089
Korityasskiy, Yakov Il'ich and others
PRIBORY I USTANOVKI DLYA ISSLEDOVANIYA TEKSTIL'NYKH MASHIN (Instruments and Installations for Investigating Textile Machinery) Moscow, Mashgiz, 1958. 278p. 2,400 copies printed. (Series: Vsesoyuznyy nauchno-issledovatel'skiy institut tekstil'nogo i legkogo mashinostroyeniya. Sbornik trudov, No. 4) 6p. Mi $1.80, ph $1.80.

BR-SOV/3114
AVTOMATICHESKOYE REGULIROVANIYE AVIADVIGATELEY; SBORNIK STATEY, VPY. 1 (Automatic Control of Aircraft Engines; Collection of Articles, Nr 1) Moscow, Oborongiz, 1959. 182p. Errata slip inserted. 3,400 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3118
Narezhnyy, E. G.
ISSLEDOVANIYE TEPLOOBMENA V GAZOTURBINNOY KAMERE SGORANIYA S ZAVIKHRITELEM OKHLAZHDAYUSHCHEGO VOZDUKHA; AVTOREFERAT DISSERTATSII NA SOISKANIYE UCHENOY STEPENI KANDIDATA TEKHNICHESKIKH NAUK (Study of Heat Exchange in Gas Turbine Combustion Chambers With Swirling Devices of Secondary Air Flow; Author's Abstract of a Dissertation for the Degree of Candidate of Technical Sicences) Leningrad, 1958. 16p. 150 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3124
Goryunov, Ivan Ivanovich
LIT'YE POVYSHENNOY TOCHNOSTI (Castings of Increased Accuracy) [Leningrad] Lenizdat, 1959. 137p. (Series: Opyt novatorov Leningradskoy promyshlennosti) 5,000 copies printed. 2p.
Mi $1.80, ph $1.80.

BR-SOV/3126
USSR. Vsesoyuznyy komitet standartov
KONDENSATORY (Capacitors) Official ed. Moscow 1958. 222p. (Series: USSR. Gosudarstvennyye standarty) 6,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3129
Goranskiy, G. K.
VYSOKOPROIZVODITEL'NYY INSTRUMENT; INSTRUMENT DLYA OBRABOTKI OTVERSTIY (High-efficiency Tools. Tools for Machining Holes) Minsk, 1959. 258p. (Series: Bibliotechka rabochego mashinostroitelya) Errata slip inserted. 3p. Mi $1.80, ph $1.80. 3,000 copies printed.

BR-CZECH/3132
Radl, Zdenek
O TRYSKOVEM LETANI (On Jet Flying) Praha Orbis, 1959. 308p. (Series; Knihovna ceskoslovenske spolecnosti pro sireni politickych a vedeckych znalosti, Sv. 145) (Series: Edice technicke vedy, Sv. 22) 3,000 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3160
Bulovskiy, Pavel Ivanovich
OSNOVY POSTROYENIYA TEKHNOLOGICHESKOGO PROTSESSA SBORKI PRIBOROV (Fundamentals of Designing Instrument-assembly Processes) Moscow, Oborongiz, 1959. 245p. 7,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3161
Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti, Kiyevskoye oblastnoye pravleniye
ZASHCHITNO-DEKORATIVNYYE I SPETEIAL'NYYE POKRYTIYA METALLOV (Protective, Decorative, and Special Coatings for Metals) Kiyev, Mashgiz, 1959. 291p. 4,200 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3163
Pavlov, Yakov Mikhaylovich
DETALI MASHIN (Machine Elements) Moscow,

Mashgiz, 1958. 511p. 85,000 copies printed. 7p. Mi $1.80, ph $1.80.

BR-SOV/3180
Moscow, Aviatsionnyy institut imeni Sergo Ordzhonikidze
ELEKTRICHESKIYE TSEPI I ELEMENTI AVTOMATICHESKIKH USTROYSTV; SBORNIK STATEY. (Electric Circuits and Components of Automatic Systems; Collection fo Articles) Leningrad, Sudpromgiz, 1958. 86p. (Series: Its; Trudy, vyp. 102) Errata slip inserted. 5,100 copies printed. 4p. Mi $1.80, ph $1.80.

BR-POL/3192
Glebicki, Kazimierz
WYPOSAZENIE SAMOLOTU. CZ. I: PRZYRZADY POKLADOWE I ICH ZABUDOWA NA SAMOLOCIE (Aircraft Equipment. Pt. I: Airborne Instruments and Their Installation) 2d ed., rev. Lodz, PWN, 1959. 583p. 1,070 copies printed. 9p. Mi $1.80, ph $1.80.

BR-SOV/3203
Turetskiy, Iosif Yudelevich and others
VOSSTANOVLENIYE TEKNOLOGICHESKOY TOCHNOSTI ZUBOFREZERNYKH STANKOV (Restoring the Accuracy of Gear-milling Machine Tools) Moscow, Mashgiz, 1957. 115p. (Series: Bibliotechka zuboreza-novatora, vyp. 7). Errata slip inserted. 10,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3205
Shavlyuga, Nikolay Ignat'yevich
AVTOMATIZATSIYA V ZUBOREZNOM DELE (Automation of Gear Cutting) Moscow, Mashgiz, 1958. 104p. (Series: Bibliotechka zuboreza-novatora, vyp. 10) 10,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3206
Kucher, Iosif Mikhaylovich and others
TOKARNYYE STANKI, IKH MODERNIZATSIYA I AVTOMATIZATSIYA (Lathes, Their Modernization and Automation) 2nd ed., rev. and enl. Moscow, Mashgiz, 1957. 138p. (Series: Bibliotechka tokaryanovatora, vyp. 3) 25,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3207
Kiriyenko, Yevgeniy Grigor'yevich and others
KHOLODNAYA SHTAMPOVKA (Cold Stamping) Moscow, Mashgiz, 1959. 167p. Errata slip inserted. 20,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3209
Nemkin, Nikolay Petrovich and others
OTLIVKA KRUPNYKH IZLOZHNITS IZ CHUGUNA PERVOY PLAVKI (Casting of Large Ingot Molds from Hot Blast-furnace Metal), Khar'kov, Metallurgizdat, 1959. 88p. 3,100 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3211
Dubinin, Nikolay Petrovich
MEKHANIZATSIYA I AVTOMATIZATSIYA LIT'YA V METALLICHESKIYE FORMY (Mechanization and Automation of Permanent-mold Casting) Moscow Mashgiz, 1959. 395p. 7,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3213
Baranov, Isaak Bentsianovich
KHOLODNAYA SVARKA PLASTICHNYKH METALLOV (Cold-pressure Welding of Plastic Metals) Moscow, Mashgiz, 1959. 115p. Errata slip inserted. 6,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3217
Baykov, Dmitriy Ivanovich and others
SVARIVAYUSHCHIYESYA ALYUMINIYEVYYE SPLAVY; SVOYSTVA I PRIMENENIYE (Weldable Aluminum Alloys; Properties and Application) Leningrad, Sudpromgiz, 1959. 234p. 4,300 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3218
Kryp'yakevych, Roman Ivanovych
KNOTROL'FORMY TSYLINDRYCHNYKHRADETALEY (Inspection of Roundness of Cylindrical Machine Parts) Kyyiv, Vyd-vo AN URSR, 1959. 110p. 2,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3219
Danilevskiy, Vladimir Viktorovich
PRISPOSOBLENIYA DLYA TOKARNYKH, FREZERNYKH I DRUGIKH RABOT (Fixtures for Turning, Milling and Other Operations) Moscow, 1958. 76p. 6,000 copies printed. 1p. Mi $1.80, ph $1.80.

BR-SOV/3222
Brazhnikov, Valiliy Timofeyevich
SOVREMENNYYE USTANOVKI DLYA PROIZVODSTVA SMAZOCHNYKH MASEL (Modern Units for the Manufacture of Lubricating Oils) Moscow, Gostoptekhizdat, 1959. 355p. Errata slip inserted. 3,200 copies printed. 5p. Mi $1.80, ph $1.80.

BR-SOV/3232
Kislik, Vladislav Afanas'uevich and others
METALLOVEDENIYE I GORYACHAYA OBRABOTKA METALLOV (Physical Metallurgy and Hot Working of Metals), Moscow, Transzheldorizdat, 1959. 392p. 10,000 copies printed. 8p. Mi $1.80, ph $1.80.

BR-SOV/3241
Akademiya nauk SSSR. Institut machinovedeniya
PROBLEMY PROCHNOSTI V MASHINOSTROYENII, VYP. 5 (Problems of Strength in Mechanical Engineering, Nr 5) Moscow, Izd-vo AN SSSR, 1959. 69p. Errata slip inserted. 2,500 copies printed. 1p. Mi $1.80, ph $1: 80.

BR-POL/3242
Ziemba, Stefan
ANALIZA DRGAN, TOM II (Vibration Analysis, vol. 2) Warsaw, Pahstwowe wyd-wo naukowe, 1959. 386p. 3,200 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3247
Moscow. Inzhenerno-fizicheskiy institut
NEKOTORYYE VOPROSY EKSPERIMENTAL'NOY FIZIKI, VYP. 1 (Some Problems in Experimental Physics, Nr 1) Moscow, 1959. 85p. 3,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3250
Akademiya nauk SSSR. Fizicheskiy institut
ISSLEDOVANIYA PO EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKE; [sbornik] (Studies on Experimental and Theoretical Physics; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304p. Errata slip inserted. 2,300 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3252
Grigor'yev, Sergey Nikolayevich and others
TEPLOVYYE DVIGATELI I KOMPRESSORY (Heat Engines and Compressors) Moscow, Transzheldorizdat, 1959. 363p. 6,000 copies printed. 8p. Mi $1.80, ph $1.80.

BR-SOV/3273
Shneyder, Yuriy Grigor'yevich
CHISTOVAYA OBRABOTKA METALLOV PLASTICHESKIM DEFORMIROVANIYEM; OBZOR (Finishing of Metals By Plastic Deformation; a review), Leningrad, Leningr. dom nauchno-tekhn. propagandy, 1958. 76p. 6,200 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3278
Zinov'yev, N. V.
TSENTROBEZHNAYA OTLIVKA CHUGUNNYKH TRUB (Centrifugal Casting of Iron Tubes), Moscow, 1958. 75p. 500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3279
RSFSR. Moskovskiy gorodskoy ekonomicheskiy administrativnyy rayon. Sovet narodnogo khozyaystva
MEKHANIZATSIYA I AVTOMATIZATSIYA SVARKI; IZ OPYTA MOSKOVSKOGO AVTOMOBIL'NOGO ZAVODO IM. I. A. LIKHACHEVA. (Welding Mechanization and Automation; the Practice of the Moscow Automobile Plant im. I. A. Likhachev) Moscow, Tsentr. byuro tekhn. informatsii, 1958. 21p. (Series: Dostizheniya nauki i tekhniki) 2,200 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3281
Berezin, Boris Prokop'yevich and others
TEKHNOLOGIYA VAZHNEYSHIKH OTRASLEY PROMYSHLENNOSTI, CHAST' 2: MASHINOSTROYENIYE; UCHEBNOYE POSOBIYE DLYA VYSSHIKH PARTIYNYKH SHKOL (Manufacturing Processes of the More Important Branches of Industry, Part 2: Machinery Manufacture; Manual for Higher Party Schools Moscow, Izd-vo VPSh i AON pri TsK KPSS, 1959. 376p. 15,600 copies printed. 5p. Mi $1.80, ph $1.80.

BR-SOV/3283
Tarnovskiy, Iosif Yakovlevich and others
DEFORMATSII I USILIYA PRI OBRABOTKE METALLOV DAVLENIYEM (Deformations and Forces in Metal Forming) Moscow, Mashgiz, 1959. 303p. Errata slip inserted. 5,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3288
Levich, Veniamin Grigor'yevich
FIZIKO-KHIMICHESKAYA GIDRODINAMIKA (Physicochemical Hydrodynamics) 2d ed., rev. and enl. Moscow, Fizmatgiz, 1959. 699p. Errata slip inserted. 5,000 copies printed. 8p. Mi $1.80, ph $1.80.

BR-SOV/3289
Berkman, Abram Samoylovich
PORISTAYA PRONITSAYEMAYA KERMAIKA (Permeable Porour Ceramics) Moscow, Gosstroyizdat, 1959. 171p. Errata slip inserted. 3,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3295
Radunskaya, Irina L'vovna
RADIOSPEKTROSKOPIYA (Radiospectroscopy) Moscow, Gosenergoizdat, 1958. 39p. (Series: massovaya radiobiblioteka, no. 319) 35,000 copies printed. 1p. Mi $1.80, ph $1.80.

BR-SOV/3302
Katkov, Yevgeniy Aleksandrovich and others
OSNOVY RADIOLOKATSIONNOY TEKHNIKI. Ch. II: ELEMENTY I SISTEMY RADIOLOKATSIONNYKH STANTSIY (Fundamentals of Radar Engineering. Pt. 2: Elements and Systems of Radar) Moscow, Voyen. izd-vo M-va obor. SSSR, 1959. 477p. No. of copies printed not given. 6p. Mi $1.80, ph $1.80.

BR-SOV/3316
Labutin, Aleksandr Lukich
KORROZIYA I SPOSOBY ZASHCHITY OBORUDOVANIYA V PROIZVODSTVE ORGANICHESKIKH KISLOT I IKH PROIZVODNYKH (Corrosion and Methods of Protecting Equipment Used for Production of Organic Acids and Their Derivatives) Moscow, Goskhimizdat, 1959. 184p. (Series: Korroziya v khimicheskikh proizvodstvakh i sposoby zashchitym vyp. 13) Errata slip inserted. 3,500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3317
Moscow. Vyssheye tekhnicheskoye uchilishche. Kafedry "Avtomatika i telemekhanika"
SISTEMY AVTOMATICHESKOGO REGULIROVANIYA I UPRAVLENIYA; NEKOTORYYE VOPROSY TEORII I TEKHNIKI (Automatic Regulating and Control Systems; Some Problems in Theory and Technology) Moscow, Mashgiz, 1959. 166p. (Series: Its Trudy, sbornik no. 97) 7,600 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3319
Kolosov, Sergey Petrovich and others
OSNOVY AVTOMATICHESKOGO PILOTIROVANIYA (Fundamentals of Automatic Piloting) Moscow, Oborongiz, 1959. 232p. Errata slip inserted. 5,500 copies printed. 3p. Mi $1.80, lh $1.80.

BR-SOV/3324
Bol'shov, Vladimir Mikhaylovich
ELEKTRONNYYE RELE VREMENI (Electronic Time Relays) Moscow, Gosenergoizdat, 1958. 47p. (Series: Massovaya radiobiblioteka, vyp. 307) 65,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3327
Uspenskiy, Vladimir Aleksandrovich'
PNEVMATICHESKIY TRANSPORT (Pneumatic Tube Transportation) 2d ed., enl. Sverdlovsk, Metallurgizdat, 1959. 231p. Errata slip inserted. 3,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3328
Batsanov, Stepan Sergeyevich
STRUKTURNAYA REFRAKTOMETRIYA (Structure Refractometry) [Moscow] Izd-vo Moskovskogo univ., 1959. 222p. Errata slip inserted. 8,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3329
Khristov, Vladimir K.
OBSHCHAYA TEORIYA PRIMENENNYKH V GEODEZII KOORDINAT (General Theory of Coordinates Used in Geodesy) Sofiya, Izd. Bolgarskoy Akademii nauk, 1959. 254p. (Series: Bolgarskaya Akademiya nauk. Otdeleniye matematicheskikh, fizicheskikh i tekhnicheskikh nauk. Tsentral'noy geodezicheskoy laboratorii. Trudy, no. 4) 500 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3333
Cherkashin, Yevgeniy Yevgen'yevich
METRIKA RAVNOVESNOY KHIMICHESKOY DIAGRAMMY SISTEM S ASSOTSIIROVANNYMI KOMPONENTAMI (Metrics of Chemical Equilibrium Diagrams of Systems With Associated Components) [L'vov] Izd-vo L'vovskogo univ., 1958. 106p. Errata slip inserted. 500 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3334
Kuprevich, Nikolay Fedorivich
TELEVIZIONNAYA TEKHNIKA V ASTRONOMII (Television Techniques in Astronomy) Moscow, Gosenergoizdat, 1958. 39p. (Series: Massovaya radiobiblioteka, vyp. 313) 30,500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3338
Drenov, Pavel Vasil'yevich
SPRAVOCHNIK PO REMONTU ELEKTRICHESKIKH MASHIN (A Manual for the Repair of Electric Machines) Kiyev, Gostekhizdat, Ukr SSR, 1958, 317p. 40,250 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3340
Kunin, Aleksandr Maksimovich and others
TEKHNO-KHIMICHESKIY KNOTROL' GAZOVOGO PROIZVODSTVA (Technical and Chemical Control of Gas Production) Moscow, Gostoptekhizdat, 1958. 331p. 3,000 copies printed. 7p. Mi $1.80, ph $1.80.

BR-SOV/3341
Drogaytsev, D. A.
DOLGOSROCHNYYE GIDROMETEOROLOGICHESKIYE PROGNOZY NA OSNOVE UCHETA KOLEBANIY TEMPERATURY (Long-Range Hydrometeorological Forecasting Based on Temperature Fluctuations) Leningrad, Gidrometeoizdat, 1959. 91p. Errata slip inserted. 2,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3348
Lontsikh, Samuil Vladimirovich and others
SPEKTRAL'NYY ANALIZ METALLOMETRICHESKIKH PROB (Spectrum Analysis of Metallometric Samples) Moscow, Gosgeoltekhizdat, 1959. 117p. Errata slip inserted. 4,500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3349
Ulanovskiy, E. N.
IZMERENIYE ELEKTRICHESKIKH PARAMETROV SELENOVYKH ELEMENTOV, VYP. 1 (Measuring Electric Parameters of Selenium Cells, Nr. 1) Moscow, Tsentr. byuro tekhn. informatsii, 1958.

23p. (Series: Dostizheniya nauki Tsentr. byuro tekhn. informatsii, 1958. 23p. (Series: Dostizheniya nauki i tekhniki) 1,700 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3350
Fedorenko, Viktor Alekseyevich and others
SPRAVOCHNIK PO MASHINOSTROITEL'NOMU CHERCHENIYU (Handbook on Machine Designing) 5th ed., rev. and enl. Moscow, Mashgiz, 1959. 244p. 135,000 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3353
Frumin, Isidor Il'ich
AVTOMATICHESKAYA NAPLAVKA POD FLYUSOM (Automatic Flux-shielded Hard Facing) Moscow, Mashgiz, 1959. 109p. 8,500 copies printed. (Series: Biblioteka svarshchika) 2p. Mi $1.80, ph $1.80.

BR-SOV/3363
Begzhanov, R. B.
SECHENIYA VZAYMODEYSTVIY -MEZONOV I PROTONOV BOL'SHIKH ENERGIY S YADRAMI SVINTSA I SPEKTRY GENERATSII ETIKH CHASTITS; AVTOREFERAT DISSERTATSII, PREDSTAVLENNOY NA SOISKANIYE UCHENOY STEPENI KANDIDATA FIZIKO-MATEMATICHESKIKH NAUK (Interaction Cross-sections of High-Energy Pions and Protons With Lead Nuclei, and Generation Spectra fo These Particles; Author's Abstract of a Dissertation Offered For the Degree of Candidate of Physical and Mathematical Sciences) Yerevan, 1958. 13p. 200 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3369
Vsesoyuznaya mezhvuzovskaya konferentsiya po kvantovoy teorii poley i teorii elementarnykh chastits. Uzhgorod, 1958
PROBLEMY SOVREMENNOY TEORII ELEMENTARNYKH CHASTITS. NO. 2: TRUDY KONFERENTSII... (Problems in the Modern Theory of Elementary Particles. Nr. 2: Transactions of the All-Union Inter-Vuz Conference on the Quantum Field Theory and the Theory of Elementary Particles) Uzhgorod, Zakarpatskoye oblastnoye izd-vo, 1959. 214p. 5,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3370
U. S. S. R. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii. Upravleniye po proizvodstvu i ispol'zovaniyu izotopov
ISOTOPY, ISTOCHNIKI IZLUCHENIYA I RADIOAKTIVNYYE MATERIALY; KATALOG (Isotopes, Sources of Radiation and Radioactive Materials; Catalog) Moscow, Atomizdat, 1959. 269p. Errata slip inserted. 15,500 copies printed. 11p. Mi $2.40, ph $3.30.

BR-SOV/3371
Minsk. Belorusskiy politicheskiy institut
SBORNIK NAUCHNYKH RABOT. VYP. 60: SERIYA FIZIKO-MATEMATICHESKAYA (Collected Scientific Works. Nr 60: Physics and Mathematics Series) Minsk, 1957. 167. Errata slip inserted. 1,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-POL/3372
Wojciechowski, Janusz
ZDALNE STEROWANIE MODELI LATAJACYCH, PLYWAJACYCH, KOLOWYCH (Remote Control of Model Aircraft, Ships, and Wheled Vehicles) Warsaw, Wyd-wa komunikacyjne, 1958. 279p. 5,140 copies printed. 6p. Mi $1.80, ph $1.80.

BR-SOV/3373
Ginzburg, Zalman Moiseyevich and others
MODERNIZATSIYA KUZNECHNO-PRESSOVOGO OBORUDOVANIYA I SHTAMPOVOYE KHOZYATSTVO KUZNECHNYKH TSEKHOV (Modernization of Forging and Press Equipment and Die Handling in Forging Shops) Moscow, Mashgiz, 1958. 68p. (Series: Bibliotechka kuznetsa-novatora vyp. 8) 7,500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3377
Orlov, Aleksandr Yakovlevich
SLUZHBA SHIROTY. SERVICE DES LATITUDES (Latitude Service) Moscow, AN SSR, 1958, 124p. 2,200 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3379
Dekabrun, Irina Yevgen'yevna
ELEKTROMAGNITNYYE POLYARIZOVANNYYE RELE I PREOBRAZOVATELI (Electromagnetic Polarized Relays and Converters) Moscow, Gosenergoizdat, 1959. 110p. (Series: Biblioteka po avtomatike, vyp. 4) Errata slip inserted. 22,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3399
Shishakov, Nikolay Alekseyevich and others
STROYENIYE I MEKHANIZM OBRAZOVANIYE OKISNYKH PLENOK NA METALLAKH (Structure and Mechanism of Formation of Oxide Films on Metals) Moscow, AN SSSR, 1959. 194p. Errata slip inserted. 2,500 copies printed. 4p. Mi $1.80, ph $1.80.

BR-SOV/3410
Bezborodov, M. A. and others
TSIRKONIYEVO-BARIYEVYYE STEKLA (Zirconium-barium Glasses) Minsk, Redizdat otdel BPI, 1959. 32p. Errata slip inserted. 1,500 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3412
Korovkin, Pavel Petrovich
OPREDELENNYY INTEGRAL I RYADY;UCHEBNOYE

POSOBIYE DLYA PEDAGOGICHESKIKH INSTITUTOV (Definite Integral and Series; A Textbook for Pedagogical Institutes) Moscow, Uchpedgiz, 1959. 175p. 14,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3427
Polikovskiy, Vladimir Isaakovich and others
VORONKOOBRAZOVANIYE V ZHIDKOSTI S OTKRYTOY POVERKHNOST'YU (Formation of Funnel-Shaped Depressions in Liquid with a Free Surface) Moscow, Gosenergoizdat, 1959. 190p. 1,750 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3435
Berlin, Al'fred Anisimovich
SVERKHLEGKIYE I KONSTRUKTSIONNYYE PLASTMASSY (Superlight and Structural Plastics) Moscow, Izd-vo "Znaniye", 1959. 31p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IX, 1959, no. 17) 44,000 copies printed. 2p. Mi $1.80, ph $1.80.

BR-SOV/3438
Akademiya nauk SSSR. Institut mashinovedeniya
TRUDY, TOM 1: VTORAYA NAUCHNO-TEKHNICHESKAYA KONFERENTSIYA ASPIRANTOV I MLADSHIKH NAUCHNYKH SOTRUDNIKOV (Transactions of the Institute of Machine Science, Academy of Sciences, USSR, Vol 1: Second Scientific and Technical Conference of Aspirants and Junior Scientific Workers) Moscow, 1959. 182p. Errata slip inserted. 1,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-POL/3440
Kulebakin, Viktor Sergeyevich and others
LOTNICZE ELEKTROENERGETYCZNE URZADZENIA POKLADOWE (Electrical Equipment for Aircraft) Warszawa, Wyd-wo Min-wa obrony narodowej, 1958. 546p. Errata slip inserted. 600 copies printed. 7p. Mi $1.80, ph $1.80.

BR-SOV/3452
Akkuratov, V. and others
NASHI KRYL'YA; MOLODEZHI O SOVETSKOY AVIATSII (Our Wings; to Youth on Soviet Aviation) [Moscow] Izd-vo TsK VLKSM "Molodaya gvardiya," 1959. 349p. 35,000 copies printed. 6p. Mi $1.80, ph $1.80.

BR-SOV/3454
Kondrat'yev, Nikolay Yakovlevich
ASTRONOMIYA V AVIATSII (Astronomy in Aviation) 2d ed., rev. and enl. Moscow, Voyen. izd-vo Min. oborony SSSR, 1959. 221p. No. of copies printed not given. 3p. Mi $1.80, ph $1.80.

BR-SOV/3455
Melik-Pashayev, Nersess Ivanovich
ZHIDKOSTNYY REAKTIVNYY DVIGATEL' (Liquid Propellant Jet Engine) Moscow, Voyen. izd-vo Min. oborony SSSR, 1959. 141p. No. copies printed not given. 2p. Mi $1.80, ph $1.80.

BR-SOV/3456
Lakomskiy, Viktor Iosifovich and others
GAZY V CHUGUNAKH (Gases in Cast Iron), Kiyev, Gos. izd-vo tekhn. lit-ry USSR, 1959. 167p. Errata slip inserted. 1,200 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3457
Podporkin, V. G.
OBRABOTKA NEZHESTKIKH DETALEY (Machining of Nonrigid Parts). Moscow, Mashgiz, 1959. 207p. Errata slip inserted. 4,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-SOV/3460
Samsonov, Grigoriy Valentinovich
SILITSIDY I IKH ISPOL'ZOVANIYE V TEKHNIKE (Silicides and Their Industrial Utilization) Kiyev, Izd-vo AN Ukrainskoy SSR, 1959. 203p. Errata slip inserted. 3,000 copies printed. 3p. Mi $1.80, ph $1.80.

BR-CZECH/3466
Danek, Milan
AERODYNAMIKA A MECHANIKA LETU PRO PILOTY A TECHNIKY (Aerodynamics and Mechanics of Flight for Pilots and Technicians) Prague, Nase vojsko, 1958. 289p. (Series: Kniznice letectvi, sv. 21). 3,000 copies printed. 5p. Mi $1.80, ph $1.80.

TRANSLATIONS IN PROCESS

ELECTRIC CONTACTS.
Russian mono. Elektricheskiye Kontakty, 1958, p. 79-95, 255-296.

NEW METHODS OF CONTROL OF DEFECT DETECTION IN MACHINE BUILDING AND INSTRUMENT CONSTRUCTION.
Mono. Novyye Metody i Defektoskopii v Mashinostroyenii i Proborostroyenii, Kiev, 1959, p. 230-233.

PETER THE GREAT; INTERNAL WATERS OF THE SOVIET UNION.
Russian mono. Sovetskoye Gosudarstvo i Pravo, 1958, p. 47-55.

RADAR OPERATORS.
[Voyennyye Znaniya] (USSR), 1959, [v. 35], no. 10, p. 24-25, 29.

STUCCO IN RURAL BUILDING (Gips w Budownictwie Wisjskim).
Budownictwo Wiejskie (Poland), 1958, v. 10, no. 12, p. 16-17.

STUDIA NAD MIKOTROFIZMEM DRZEW LESNYCH.
Instytut Badawczy Lesnictwa. Prace (Poland), 1958, no. 177-182, p. 5-211.

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